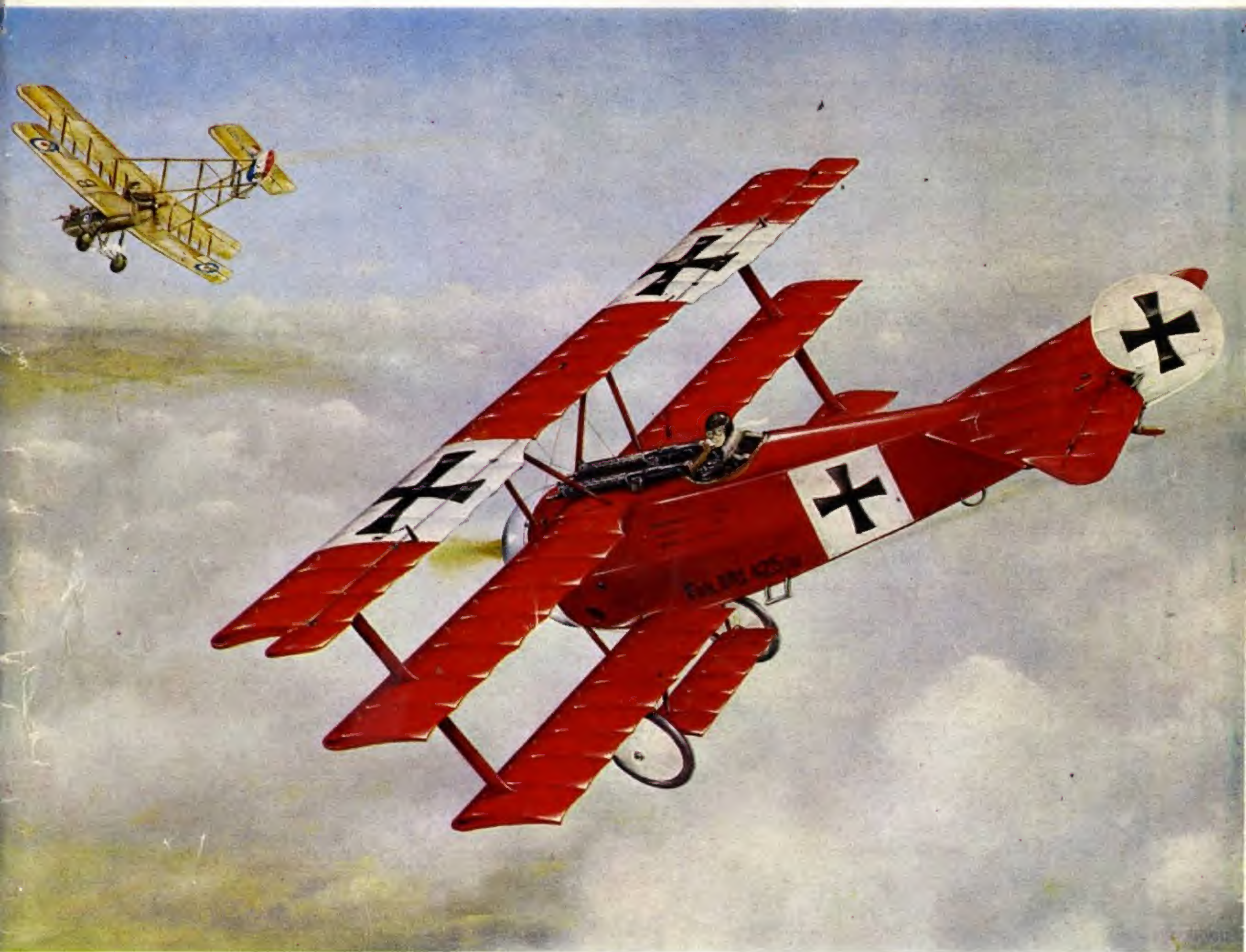


AIRFIX magazine

MAY 1970

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ISSUE**

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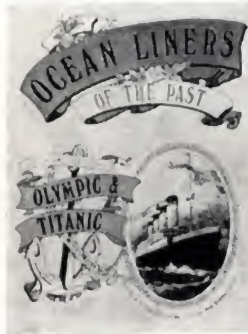
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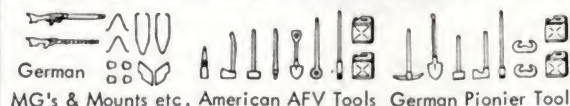
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AIRFIX magazine FOR PLASTIC MODELLERS

May 1970

Volume 11 No 9

Editor Chris Ellis

Cover Picture

A dramatic painting of the celebrated 'Red Baron', Manfred von Richthofen, in his Fokker DR1 Triplane, attacking a British FE 2b over the Western Front in early 1918, and giving a vivid impression of the early days of air fighting. The aircraft depicted is the one in which Richthofen was killed on April 21, 1918.

The painting is by our contributor R. H. Williams, whose pictures have appeared on several recent AIRFIX magazine covers and have received much praise from readers. This month's cover painting has been published as a large sized (17 inch x 23 inch) full colour print by Plaistow Pictorial, 3 New Plaistow Road, London E15, from whom copies are obtainable at 12s 6d plus 1s 6d post and packing. Suitable for framing (and about three times larger than we have reproduced it), the picture should have wide appeal to aircraft enthusiasts.

For a more detailed account of the Fokker Triplane and its colour schemes, readers are referred to the series of articles by Paul Leaman which appeared in our July, August, and October 1969 issues. Copies can be had (2s 6d each, postage extra) from our Back Numbers Dept, Surridge Dawson Ltd, 136 New Kent Road, London SE1.

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May 22, 1970

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NO 824 Naval Anti-Submarine Squadron was formally commissioned at RNAS Culdrose Cornwall on Friday February 27 with six Sea King HAS Mk 1 helicopters under the command of Lieutenant Commander L. Hallett. The squadron, which was originally formed in 1933 becomes the first operational squadron in the Navy to operate the Sea King and will be going on board HMS Ark Royal which has also recently commissioned.

Lieutenant Commander Hallett was until recently the senior pilot of No 7005 Squadron which is carrying out intensive flying trials with the Sea King at Culdrose. Although the trials have yet to be completed the last seven months have shown that the Navy's new 10 ton chopper meets all the requirements laid down for it. The squadron will have 31 officers and 94 ratings and will spend the next few months at Culdrose perfecting its operational techniques before going on board HMS Ark Royal.

HS 748 Orders

Hawker Siddeley Aviation have recently announced the sale of several more HS 748 Srs. 2A aircraft for export. Three have been ordered by the Mexican airline Servicios Aereos Especiales SA (SAESA). Under a rationalisation of the country's domestic air



transport by the Mexican government, SAESA with its associated company Aeronaves de Mexico SA, will form an important part of an integrated air transport system.

SAESA has already taken over the operation of two Hawker Siddeley 748s previously operated by Aeromaya and with the addition of the three new aircraft will operate an extensive network of feeder routes covering most of Mexico.

The aircraft to be delivered will be furnished in a 52-seat configuration and deliveries will start immediately. Zambia Airways Corporation took delivery of its first Hawker Siddeley 748 at the end of March. The Company has signed an order for two aircraft with an option on a further three. The second HS 748 will be delivered in June and Zambia Airways are leasing another aircraft from Hawker Siddeley to enable scheduled services to start from Lusaka. Five Zambian pilots are currently completing a conversion course on the aircraft at Hawker Siddeley's Woodford, Cheshire, airfield. This latest order follows an intensive evaluation of the Hawker Siddeley 748 during which Zambia Airways leased an aircraft for a period of three weeks in January and operated daily services on their route network.

The total sales of all variants of Hawker Siddeley 748 now stand at 217 with 165 aircraft for export.

Trident progress

The latest version of the Hawker Siddeley Trident—the high capacity 3B—is making good flight test progress. Forty-five flights had been completed by the end of January totalling more than 70 hours in the certification programme.

With the installation of its Rolls Royce RB162 boost engine the next development phase of the Trident 3 has now begun. First flights with the additional engine operating were made in March. The RB162 supplements the power of the three Rolls Royce Spey engines for take-off and initial climb. The fourth engine is shut down for cruise.



Top: This unusual photograph taken during recent Far-East operations by No 74 Squadron shows one of their Lightning F6s being refuelled by a Victor B(K)2. The Lightning, XR768, carries the long range over-wing fuel tanks. Above: The sign in front of these two new Sea King helicopters makes it doubly sure that they belong to the Navy's first operational Sea King Helicopter Squadron, No 824, which commissioned at Culdrose recently. The Squadron's badge can be seen clearly aft of the cockpit entrance. The aircraft in the foreground is XV655.

Since its maiden flight in December, piloted by Mr John Cunningham, executive director and chief test pilot of Hawker Siddeley Aviation, Hatfield, the Trident 3 and its complex test instrumentation have had a high serviceability record. Early programme targets, designed to establish the boundaries of the operation envelope, have all been achieved, including the clearance of the design speed and Mach number limits. Two Mach numbers in the range of 0.95-0.96 (about 40 miles an hour below the speed of sound) have been achieved on several flights. Handling characteristics at these high speeds have been good. Included in the test programme has been a series of fully automatic landings. First deliveries of the new aircraft, 26 of which are on order for BEA will be in early 1971.

First Lufthansa 747 delivered

Lufthansa has taken delivery of the first of its five Boeing 747s becoming the first foreign airline to receive a 747 and the first airline to have received all major models of Boeing jet-liners. Lufthansa flight crews are now under training with their first aircraft at Tucson, Arizona. The airline is due to start transatlantic jumbo jet services in April.

Operating more Boeing jets than any other non-US airline, Lufthansa now flies 21 model 707s, 27 model 727s and 26 model 737s over its world wide routes. The airline formerly operated Boeing 720Bs, the medium range four-jet airliner. It was the first airline in Europe to introduce the tri-jet 727 and the first airline in the world to place twin-jet 737s in service. Lufthansa is one of 28 airlines which have ordered a total of 186 Boeing 747s of which 15 had been delivered by mid-March.

The pieces fit

Work on the production of the first McDonnell Douglas DC-10 tri-jet liner is going well. The manufacture of various parts has been dispersed at the company's nation-wide factories in the States and these are now being brought together at the Long Beach, California, facility of Douglas Aircraft. Recently the whole forward fuselage section was transported by air inside one of the 'Super-Guppy' Stratocruiser conversions of Aero Spacelines often used for the air lifting of parts of the Saturn moon rocket.

The forward fuselage segment, 55 ft long and almost 20 ft in diameter, was built in San Diego and on arrival was immediately

moved into position on the production line in preparation for nose joining several hours later.

The Convair Division of General Dynamics builds the forward fuselage segments at San Diego and McDonnell Douglas Astronautics Company produced DC-10 noses in Santa Monica. Convair also build the over-wing and aft fuselage sections. The forward fuselage, which extends from the nose to the leading edge of the wing is the largest single sub-assembly for the DC-10.

From cars to passengers

British Air Ferries, a member of the Air Holdings Group has recently announced plans to introduce turbo-prop aircraft into service next year. They will probably be using Hawker Siddeley 748s which will supplement BAF's existing fleet of six Carvairs. The new aircraft are required to meet a substantial increase in passengers without cars being carried on the Southend to Rotterdam, Ostend and Le Touquet routes. This traffic has increased 73 per cent in the last three years to a total of 138,000 passengers last year. At present BAF operates ageing Bristol Super Freighters from Lydd (Ferryfield) in addition to the Southend Carvairs.

Both of their present aircraft types are getting to the end of their useful lives. The Freighters for example have been in continuous service for the last 20 years and must be considered due for retire-



Top: Air cadets of No 1 (Overseas) Sqn, Akrotiri, Cyprus, came to the rescue recently of this Pembroke C1 (WV706). The aircraft with over 3,000 flying hours to its credit was to be scrapped by No 103 Maintenance Unit but the cadets won a reprieve for the aircraft and it was transported to its new site at Squadron HQ near Cape Gata. The Pembroke had flown a total of 3,587 hours starting in 1953 and had served in the Middle East, Bahrain and the Handing Squadron at Boscombe Down. Centre: The new Trident 3, G-AWYX, with the additional RB162 boost engines mounted at the base of the fin takes off from Hawker Siddeley's Hatfield airfield. Above: The forward fuselage section of the prototype DC-10 arriving at Long Beach, California, inside a Super Guppy Stratocruiser conversion of Aero Spacelines for mating to the nose section which is already completed. DC-10 orders now total 201.

May, 1970



Ten Harrier fighters of the No 1 Sqn, RAF, took part in an operational work-up during a successful exercise in Cyprus. Deployment to the Mediterranean meant it was the largest number of Hawker Siddeley Harriers—the world's first operational V/STOL aircraft—to go abroad at one time. During the 10 day exercise the Harrier GR Mk 1s were based at RAF Akrotiri and demonstrated their unique multi-role capability. The Squadron's home base is at Wittering, Northants.

ment shortly. With the introduction of better sea and hovercraft services across the Channel, British Air Ferries, who have not ordered a replacement for their car ferry aircraft must be well pleased with the increase in passenger traffic.

First flight for Airbus engine

Rolls Royce's latest engine the RB211 three-shaft turbo-fan of initially 40,600 lb thrust which will be used on the Lockheed L1011 Tri-Star Airbus was airborne under its own power for the first time on March 6.

It flew from the company's test airfield at Hucknall, Nottingham, in a VC-10 flying test bed aircraft converted by installation of a single RB211 advanced technology engine in place of the two Rolls Royce Conway turbo-fans normally mounted on the port side.

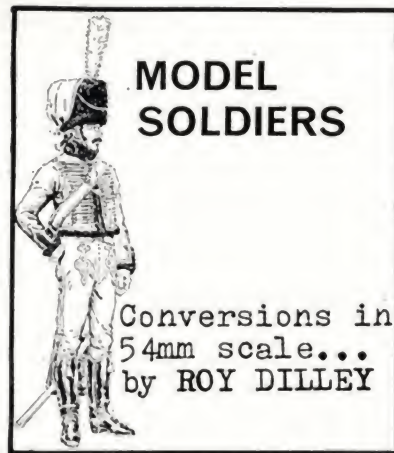
Included in the planned 1,100 hour flight development programme for the RB211 which began with this first flight, is a 1,000 hour endurance test on a typical Lockheed L1011 Tri-Star operation as well as other tests designed to expedite the development and certification of the engine. The RB211 powered Tri-Star is scheduled to make its first flight towards the end of this year and enter commercial operation late in 1971.

A VC-10 was selected to test the RB211 as its speed altitude flight envelope matches closely that of the Tri-Star. The geometry of the test installation is also representative of the eventual installation in the Lockheed aircraft. The propulsive requirements of the VC-10 are almost ideally suited to the RB211 which has a thrust approximately equal to that of the two Conways it replaces. The VC-10 is the largest aircraft ever to be employed at Hucknall as a flying test bed.

Defence plans

According to Interavia air letter, a new through-deck cruiser to replace the 'Tiger' class will be one of Britain's main types of warship in the 1970s. Although the vessel bears a remarkable resemblance to an aircraft carrier, Whitehall insists on classing it as a cruiser. The Navy is currently engaged in fully funded studies for the new vessel which is intended to accommodate 12 Sea King helicopters. In the recent Defence White Paper the Ministry of Defence is very cautious about V/STOL operations but clearly the cruisers will be capable of operating the Harrier or its successor. The ship will have command and control facilities. The Tiger class ships with their aft helicopter platforms will operate Sea King ASW helicopters—four to each ship.

The RAF Airborne Early Warning (AEW) requirement is considered to be very high priority. The threat from long-range low-level and high-low intruder aircraft with nuclear conventional weapons has become very serious, not only for Britain but for the whole of NATO. So far the RAF have taken no decision on the airframe to carry the new AEW radar which is at present under development and on test in a Comet. Both the Andover and the German VFW-614 are possible contenders but in the meantime the maritime AEW role will be taken over from the Navy's Gannets by converted Shackletons.



IN my last article I dealt with the so-called 'hard' plastics, and described in detail several conversions that I had carried out using some of the Airfix Motor Racing set of Track Officials and Spectators. This month I will consider the conversion possibilities of flexible figures, specifically those being produced by Airfix in their 54 mm Military Series. The range consists, at present, of four sets, depicting British Paratroops, US Infantry, German Infantry, and Russian Infantry, with sets of British Commandos and Japanese Infantry due for issue in the near future. All the figures are made of Polythene, a very tough substance despite its flexibility. It takes a reasonable amount of detail in the moulding, and a great deal of skill and imagination has gone into the design of all the sets. Of those currently available I personally prefer the German models, and I decided after study and consideration that they would be ideal as the basis for conversion to produce a small trench-raiding party of the first world war.

The initial mobile operations of August and September 1914 gradually bogged down towards the end of the year in the virtual impasse of trench warfare, a situation which was to drag on with only minor alterations for more than three years. This state of affairs imposed a definite pattern on to the Western Front campaign, in which long spells of relative inactivity were alternated with colossal battles of attrition sometimes lasting for months on end, and causing enormous casualties in men and destruction of material. Neither side could

break through the others' defensive positions in a decisive victory, and the periodic cataclysmic battles saw the opponents battering away at one another until sheer exhaustion restored events to the customary uneasy stalemate.

Understandably, front-line soldiers on both sides showed considerable reluctance to 'stir things up' during the periods of lull, and the enthusiasm of various specialists, such as trench mortar teams, who brought up their nasty novelties for a quick bang at the enemy from the forward trenches, was severely frowned upon by the semi-permanent tenants. However this attitude was not regarded with favour by commanders of the opposing armies, who felt it to be their duty to keep the pot boiling until the next 'big push'. Consequently, they devised all sorts of schemes to ensure that the long suffering inhabitants of the trench systems were, as it were, kept on their toes.

Among the measures taken to keep the enemy occupied and in a constant state of nervous apprehension was the practice of trench raiding, in which small, lightly equipped parties made a lightning descent on the opposing trenches, smashed their way along them as destructively as possible, and when resistance stiffened, made an equally rapid disappearance back to their own lines. Sometimes the necessity to obtain a prisoner for interrogation was the reason for the raid, sometimes to eliminate a troublesome machine gun nest or observation post was the object. Quite often a raid was made for the sheer hell of it, and to keep the other side as jittery as possible.

Whilst all the participants in the struggle practised this kind of activity, the German Army organised units specifically for trench raiding and assault, the *Stosstrupen*, later known as *Sturmabteilungen*. Usually only two or three men made up a trench raiding team, each complementing the others, and all working in concert. Their weapons were simple, consisting mainly of grenades, clubs, sharpened knives, entrenching tools and bayonets, and pistols, all easy to use within the confines of a trench. Sometimes one of the team would carry a light shield for protection, and this would probably have been made up from a machine-gun mounting shield, re-inforced and fitted with straps for carrying. Rifles were sometimes carried slung over the shoulders, but these were rarely used during a raid as their length and unhandiness in reloading were serious

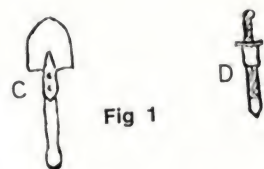


Fig 1
Entrenching tool and trench knife to 54 mm scale

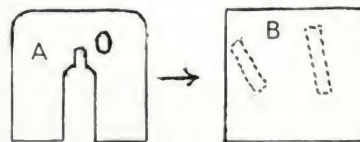


Fig 2
Cut from 20 thou plastic card and superimpose A on B; dotted lines show position of straps on back

Shield drawn to 54 mm scale

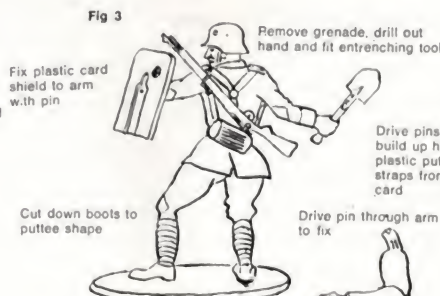
disadvantages. A great variety of trench fighting weapons can be seen on display in the Imperial War Museum at Lambeth, most of them conveying an impression of considerable barbarity. Clubs were made from anything convenient to hand, from officers' canes loaded with lead, to iron cog wheels mounted on cut down pick-helves. Knives and converted bayonets were popular, and even knuckle-dusters were common.

The conversions that I have carried out this month depict a German trench raiding party as it might have appeared in 1917. It consists of an officer armed with club and pistol, one man carrying a shield and entrenching tool sharpened to make what was in effect a light battle-axe, and the third member of the team with two haversacks of grenades and a trench-knife. They are dressed in the pattern of uniform worn later in the war by some troops. In this, cloth puttees and lace-up boots replaced the more familiar 'half boots', the buttons of the field blouse were concealed behind a 'fly' front, and the cloth of the garments was re-inforced at knee and elbow with leather patches. Equipment, other than the gas-mask container, has been discarded in the interests of lightness and mobility. Details of these uniforms were given in AIRFIX magazine for April 1968, as part of David Nash's excellent series of articles on the German Army 1914-1918.

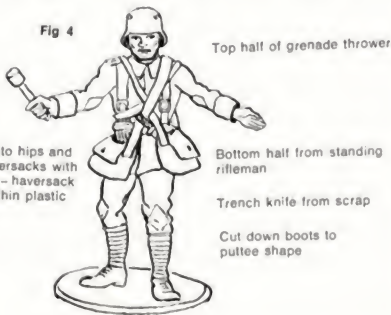
The tools and materials I used were a very sharp craft knife (actually the Humbrol type), household pins, scrap plastic from



CONVERSION 1



CONVERSION 2



CONVERSION 3



Above: Front and rear views of the models described here. Most other figures in the same Airfix set can be converted like this for the 1916-18 period following these details; jackboots may be retained if desired.

the spares box, sheet plastic card, Micro-strip, and UHU adhesive; plus, of course, basic figures from the 54 mm German Infantry set, and some plastic body-filler or putty.

Conversion 1

The officer with pistol and trench-club: this is made from the officer, and a charging rifleman.

This is a fairly simple conversion, providing a good opportunity to get the 'feel' of Polythene as a working material. I must emphasise that it is not possible to file or sand this type of plastic satisfactorily, and so all unwanted material must be removed by *clean cuts* with a sharp knife. No scraping with the knife blade should be attempted, as this merely raises innumerable fibres all over the surface so treated, and completely ruins one's work.

First cut away the map-case, binoculars, and water-bottle, including their straps, but leaving the gas mask container and pistol holster. Continue by trimming off the buttons, breast pockets, and the lower portions of the hip pockets, leaving the flaps of these latter in position. This gives an accurate representation of the field blouse. Next, carefully cut round the top of the collar, and remove the head, making sure that an absolutely flat surface is left at the neck. Repeat this process with the head of the charging rifleman, again ensuring a perfectly flat surface, this time to the underside of the head at the neck. Into the upper temples of the helmet, drive two 4 mm lengths of household pin, leaving them projecting approximately .5 mm clear of the surface. These represent the distinctive lugs on the World War 1 pattern helmet, which served to take a hinged visor for snipers' use.

Now drive another length of pin up into the head at the centre of the neck, leaving about 1/2 inch protruding. Using this as a 'peg' push the head firmly down on to the body, applying a film of UHU cement between the two parts. Make sure that the new head is looking in the same direction as the original, that is 'sighting' along the raised pistol-arm. Trim the rear body of the pistol to remove the hammer and give a vertical rear surface, suitable to represent the Luger type of pistol. Finally, push a 1/2 inch length of stout pin through the left hand, smearing it first with UHU, and allow a blob of the same cement to harden on the end of the pin to form the trench-club. Dip the figure into a detergent solution, and allow to dry before painting.

Conversion 2

This is for a soldier with shield and sharpened entrenching-tool. Figure required: man throwing stick-grenade.

May, 1970

Remove all equipment except the gas-mask container and right hand ammunition pouch. Cut off buttons, breast and hip pockets as for the Officer figure, and being careful not to damage the rifle which should be left slung on the back. Alternatively it is possible to replace the moulded rifle with one from a Minimodel German figure; this is made of rigid plastic and secured to the Polythene figure with lengths of pin and UHU cement. I prefer this replacement, as the hard plastic rifle accepts and retains paint more satisfactorily than the flexible one.

Next trim the 'half-boots' and trousers to represent puttees, taking great pains to cut cleanly and avoid raising fibres on the surface. Following this, repeat the procedure for adding lugs to the helmet, and trim off any excess flash. Now cut off the extended left arm at the elbow, and trim the two exposed ends so that when the forearm is replaced it will form a right-angle parallel with the base. Cut two pieces of plastic card as per the diagram, and fix them together with Mekpak to make the shield. This is then attached to the forearm with UHU, a length of pin, and two 'straps' of thin plastic card strip, the whole assembly then being replaced onto the stump of the upper arm again with a pin and UHU. Make from scrap an entrenching-tool using the diagram as a guide, and fix it in the drilled-out right hand, having first removed the grenade. When all the assemblies have dried out thoroughly, wash in the detergent solution and paint.

Conversion 3

This is for a man with grenades and trench-knife. Figures required are the man throwing grenade; standing rifleman; and head only from charging rifleman.

COLOUR DETAILS

Helmets: Field Grey, or 'dazzle'-painted in shades of red, brown, green and yellow.
Tunic (Field-blouse): Field Grey, with shoulder straps piped in white, with red regimental number.
Officer's shoulder strap: dull silver with gilt star, on white surround.
Trousers: Field Grey.
Puttees: Field Grey.
Boots: Semi-matt black (depicting leather).
Belts and equipment straps: Semi-matt black.
Pistol holster: Brown.
Rifle: Brown with gun-metal fittings and barrel.
Gas-mask containers: Dark grey or black. (Semi-matt.)
Entrenching tool: Steel with bright edge, and light brown handle.
Pistol: Black.
Haversacks and Straps: Pale beige (represents unbleached cotton material).
Shield: Dark Grey.
Knee and elbow patches: Dark Grey.
Trench-club: Steel with light brown handle.
Grenade: Dark Grey with beige handle.
Trench-knife: Brown.

Rather more work is required for this piece, which involves the uniting of parts from three separate figures to achieve the final result. Shape the boots of the standing rifleman to the puttee configuration, then cut through the waist immediately above the belt, and remove the whole upper body completely. Sever the trunk of the man throwing grenade in the same way, discard the lower portion, and trim the head, rifle, pockets and buttons from the top part of the torso. With the same technique that we used to fit the head on to the Officer figure, but this time using two pins, unite the top half of the grenade thrower with the bottom half of the rifleman, swinging the chest round so that it points forward along the line of the advanced left leg. Add the lugs to the charging man's helmet, and fix the head to face directly forward. Now drive two short pins into each hip of the figure to serve as 'keys' for the two haversacks which are then built up from plastic body filler. When this has dried thoroughly, sand it smooth with very fine emery or glass cloth, and add the haversack straps from thin strips of plastic card. Fashion a trench-knife from scraps of plastic, to the dimensions shown in the drawing, and attach it to the belt with UHU. Leave to set for at least 24 hours before handling, and the figure will then be ready for its detergent bath and painting.

These conversions, together with the 'hard' plastic ones discussed last month, should have given even the newcomer to converting a sound idea of the techniques involved, and have stimulated the imagination to produce other and more varied pieces from the great number of basic figures available on the market today.

Painting

One of the problems facing the enthusiast is painting Polythene figures, for paint applied in the normal way has a tendency to wear or flake off with handling. The usual way of overcoming the problem is washing each figure in detergent before painting, but even this is not entirely satisfactory. The secret of success is to use a material called Unibond, sold in hardware stores at 1s 6d a tube. This is a water-soluble substance which is simply applied by brush all over the completed figure. It is milky when applied but sets transparent to form a smooth hard varnished overall surface. You can then paint the figure in the normal way and the colours will take and adhere just as though the soldiers were moulded in hard polystyrene. Try it, and I'm sure you will agree that Unibond treatment goes a long way to overcoming one of the major limitations of Polythene. It can be used on other Polythene models, too.



Armoured Dozer

Project for advanced military modellers
by Geoffrey W. Futter

THE armoured bulldozers used by the British Army during the 1939-45 war were generally commercial type machines fitted with armour plate superstructures to protect the operators and engine covers. Minor modifications, such as extended exhaust pipes and raised air cleaners, were incorporated to enable the machines to wade through water, certain engine components being specially waterproofed.

The particular type illustrated by the drawings and photographs is the Caterpillar Tractor Co Model D6 version which was fitted with a blade usually set at 90° to the longitudinal axis of the machine but which could be reset at approximately 30° to either side to become what is termed an angledozer—as shown in the photographs. Larger versions manufactured by the same Company were also used in addition to unarmoured machines by various manufacturers.

Armoured bulldozers, which were operated by the Royal Engineers, were available in time to give valuable service with the 79th Armoured Division and the Beach Groups during the D-Day landings and after, preparing roadways on the beaches and removing obstacles, etc, in addition to serving as general hacks for towing away bogged-down and disabled vehicles by using the rear mounted winch. Armoured bulldozers together with the other specialised armoured vehicles ('The Funnies') operated by the 79th Armoured Division were the first vehicles to land on the Normandy beaches.

In the advance of the Allied Armies this Division provided the armoured bulldozers which were present in the forward areas during many operations, assisting in the construction of approach roads to river crossings and clearing roads blocked by debris, among many other necessary military engineering tasks.

At first glance at the drawings and photographs it may be considered that to construct a model of this subject to such a reduced scale as 1:76 may be a difficult operation, owing to the considerable amount of small detail on the full size machine, but if the suggestions given in the following notes are observed and the dimensions of the various parts are carefully measured from the drawings a realistic model should result without great difficulty to the average advanced modeller. The numbers referred to in the modelling notes are those shown on the exploded drawing.

STAGE 1 Construct the chassis (assembly 1 on drawing) consisting of two side members, bottom plate and top plate from plastic card shaping the rear of the side members to suit the profile of the winch components—not the same shape both sides. Note that the dimensions on the plan of the chassis when assembled must allow it to slide into the underside of the armoured engine cover and operators' superstructure (assembly 3 to be described later) so that the extra width at the rear end of the chassis top plate becomes the floor of the operator's position.

Shape the final transmission casings from laminated card and drill to receive the axles for which stretched sprue or plastic rod should be used. Locate the final transmission casings accurately on the chassis side members and cement into place.

Form the drawbar assembly (2 on drawing) from plastic card and cement into

place on the rear lower corners of the chassis side members.

STAGE 2 The armoured engine cover and superstructure (3 on drawing) should be fabricated next from plastic card. This is probably the easiest part of the machine to model as it is composed entirely of flat plates which can be cut to the required sizes and angles by tracing the outlines direct from the drawings. Plastic card gussets can be used inside the structure where considered necessary to strengthen the joints between the plates. The various hatches in the sides of the engine cover can be scored with the sharp point of a modelling knife and of course the vision openings in the superstructure should be cut out before the plates are cemented together. If thin gauge card has been used the bolt heads can be represented by pressing with a fine blunt pointed instrument on the reverse side of the card in the required position but some care should be exercised in doing this; in fact, it would be advisable to practise on some scrap card until the right effect is achieved. From plastic scrap cut a square of the right dimensions and cement in place to represent the armoured cover over the radiator cap, first shaping the underside to suit the angle on the centre line of the engine cover top plates. It should be noted that these engine cover top plates do not extend forward of the armoured cover of the radiator cap.

Although the air cleaner, exhaust pipe, etc, can be made at this stage (from stretched sprue or plastic rod of suitable diameter) it is advisable to leave the fixing of these until much later to avoid breakage while handling the model during the remaining stages of construction. This applies also of course to the step irons, lifting hooks, etc, if the modeller intends providing these on his finished model.

The tool box (4 on drawing) and support brackets should be made next and cemented in the correct position on the rear of the machine.

The chassis and armoured superstructure should now be cemented together (9 on drawing) with the chassis being pushed into the open underside of the superstructure until the undersurface of the widened part at the rear end of the chassis lines up with the bottom edges of the operator's superstructure, while the front end of the chassis bottom plate meets the lower edge of the armoured radiator cover.

STAGE 3 The rear mounted winch (5 on drawing) is the next part to consider and as it will be best to make this from plastic scrap or suitably shaped parts taken from kits the modelling of the winch will not be described in detail here but will be left to the discretion of the modeller to suit the material he has available. When complete, the winch assembly should be cemented into the cut outs left in the rear ends of the chassis side members during Stage 1 construction, adjusting the cut outs as necessary to ensure that the winch sits properly. Fuse wire can be wound round the winch drum to represent the winch hawser.

The jerricans in racks on the superstructure sides can be added if the modeller has enough spare jerricans in his bit box left over from perhaps any US halftrack or other conversions he may have made. Not all the armoured bulldozers carried jerricans but the Beach Group D6, the markings of which are shown on the drawing, did in fact carry these when it went ashore on D-Day. This particular D6 towed a flat bed trailer loaded with engineers' stores when it disembarked from the LCT which had brought it over from England with carriers of 3rd Infantry Division.

STAGE 4 We now come to the most difficult stages of the modelling starting with the heavy cranked frame (6 on drawing) which carries the blade and which is moved up or down by hydraulic jacks on the full size machine. For the purposes of the model we will consider this to be a fixed member as at 1:76 scale it will be too difficult a task for it to be made movable.

First, from plastic card, which has been laminated to the scale thickness of the heavy steel members from which the cranked frame is made, cut the four parts of the frame (the two cranked side arms and the two angled members at the forward end). Ensure that these are cut accurately to the shape and size shown on the drawings and mitre the ends to the correct angle, checking the fit of these before cementing the four parts together.

From thin card cut the two flanges at the forward end of each of the side arms and cement into place together with the wedge shaped bracket to the uppermost flange, which should be cut from suitable plastic scrap. From plastic rod cut the rollers which are located on the top edge of the side members and cement these between pairs of brackets cut from thin card and then, when set, cement the brackets on to the side members measuring the location from the drawing. Note that on the full-size machine these rollers move against the armoured engine covers to steady the moving arms, therefore when cementing the rollers on to the model arms, the distance between the rollers must equal the width of the armoured engine cover.

To represent the toothed blade fixing on the angled nose of the cranked frame cut a piece of scrap plastic to the overall general shape and size of this and cement into position. It would be an almost impossible task to model these as separate teeth of the right dimensions and the overall effect of the model will not be spoilt by not doing so.

This deals with the cranked frame for the time being, the hydraulic jacks being modelled later when the frame has been fitted to the machine.

STAGE 5 Next we deal with item 7 on the exploded drawing which is the blade and the telescopic auxiliary arms which on the full-sized machine are adjusted to change the angle of the blade.

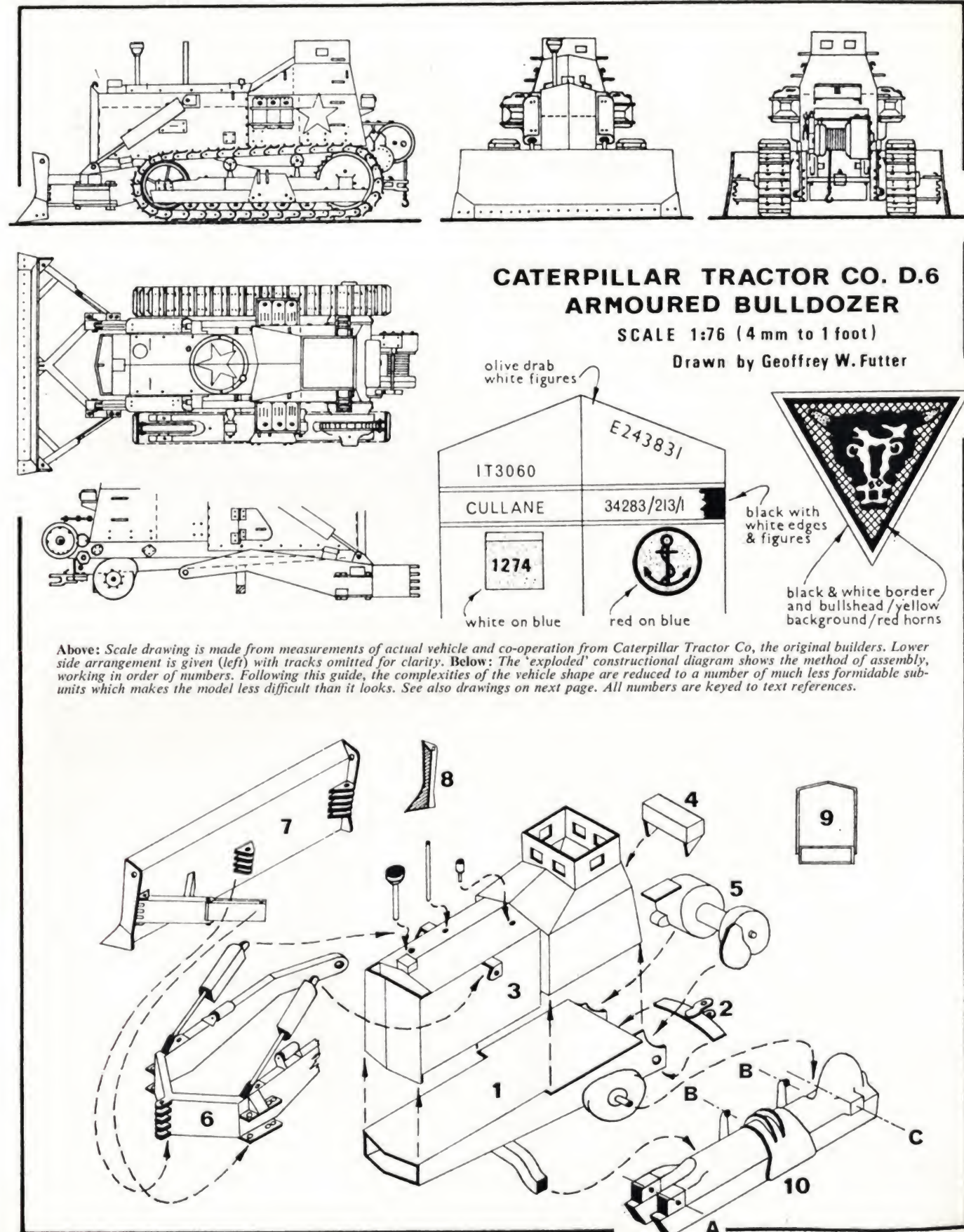
The blade itself is quite simple to construct being modelled from three pieces of thin card which are cut to size, bent, and then cemented together at their long edges to form the hollow blade. These three pieces of card are for the forward face of the blade, the rear face and the lower plate. The hatched area of figure 8 on the drawing (which is to the actual size for the model) shows the sectional profile of these when joined together and from the forward and rear view drawings of the complete machine it will be seen that the ends of the blade are finished to a curve. On to these curved ends should be cemented the blade end plates (cut from thin card) which it will be noted from figure 8 are oversize to the rear of the blade, with a lifting eye in the uppermost corner but flush with the working surface.

If required the strengthening plates on the working edge of the blade and on the lower corner of the end plates can be cut from thin card and cemented to the faces of the blade end plates.

The modeller must now decide whether he prefers his model to be of a bulldozer or an angledozer as the next parts to work on are the auxiliary arms, the length of which are affected by the angle of the blade. Reference to the photographs will clearly show what this means.

Continued on page 420

AIRFIX magazine



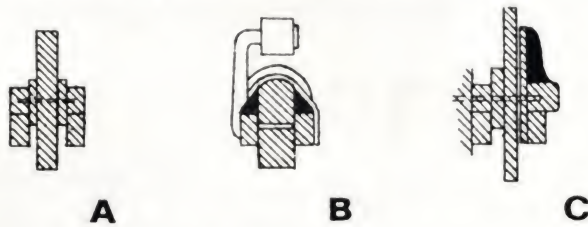
Above: Scale drawing is made from measurements of actual vehicle and co-operation from Caterpillar Tractor Co, the original builders. Lower side arrangement is given (left) with tracks omitted for clarity. Below: The 'exploded' constructional diagram shows the method of assembly, working in order of numbers. Following this guide, the complexities of the vehicle shape are reduced to a number of much less formidable sub-units which makes the model less difficult than it looks. See also drawings on next page. All numbers are keyed to text references.

Armoured Dozer—continued

Cut the length required for each arm, according to the angle of the blade decided on, from a laminated card strip of scale width and thickness and file one end portion on each arm down in size to represent the smaller dimensioned part which telescoped into the larger member on the full-size machine—refer to the photographs again for clarity on this point.

The toothed fixings will be ignored because of the small scale, as mentioned earlier, so the blade, auxiliary arms and main cranked arms can now be cemented together with the angled nose of the main cranked arms cemented into the centre of the rear of the blade. The forward end of the auxiliary arms on the inside of the protruding rear edge of the blade end plates, and the rear end of the auxiliary arms between the flanges on the side of the cranked side arms are cemented next. Now put this assembly aside until the track units, to which it will be joined, are dealt with.

STAGE 6 The only major parts of the machine not yet modelled are the left and right hand track units and before describing this work some sketches are given here to be read in conjunction with the following notes and with part 10 on the exploded drawing.



Cross-sections as marked on part 10, previous page.

Carefully study the general arrangement of these parts of the model and then for the 2 pairs of roller beams prepare four lengths of laminated card of dimensions measured from the drawings and with the ends splayed to the correct angle. On the front end of these cement suitably sized pieces of plastic to represent the axle boxes for the idler wheels. Into what will be the inside face of each axle box drill a hole to receive the idler wheel axles. Perhaps at this point the modeller should see if he has suitable wheels available to serve as the idler and drive wheels for the model but if not, a disc of stout card of scale diameter could be used for each idler wheel. To such a small scale the model will not be spoilt if these wheels are not spoked as on the full size machine. The drive wheels, which it must be noted give the track a larger radius than at the idlers, can again be stout card discs with the teeth carefully filed around the circumference.

To proceed with the preparation of the various components for the track units a spacing piece of plastic is now required for each unit which will be cemented between the roller beams and six track rollers for each unit should be cut from plastic rod of the diameter scaled from the drawings.

Now the assembly of the track units can commence first by inserting a length of pin or wire through the idler wheels and cementing on to each side of the idler wheels plastic card washers which will give an overall thickness equivalent to the width of the spacer to be cemented between the roller beams. Cement a spacer on one roller beam of each track unit noting that the spacers commence just to the rear of the idler wheels and end just forward of the drive wheels. Cement the other roller beams on to the spacers at the same time putting the idler wheels in position with the axle stubs inserted in the holes already drilled in the axle boxes.

On the rear end of each inner roller beam cement a square of plastic through which a hole should be drilled, the diameter of which should be the same as that of the axles protruding from the final transmission casings and on the rear end of each outer roller beam an axle box is required which protrudes beyond the outer face of the roller beam with the corners rounded as shown on the photographs. Into the inner face of these outer axle boxes drill a hole again of the diameter of the axles in the final transmission casings. Careful setting out of the positions for the drilling of all the axle box holes is necessary to ensure that all the components can be assembled correctly.

If the drive wheels have been provided by cutting from plastic card, cement on the inner face of each drive wheel a plastic card washer but instead of a washer on the outer face, a semi-circular piece of plastic card is required which should be cemented on the inner face of each outer roller beam to form the backing for the drive wheel guard which can be seen on the photographs and which is only a few inches less in diameter than the drive wheels on the full-size machine. Before cementing the guard on the roller beam the axle hole must be drilled in the correct position in the guard.

Cement the six track rollers between the roller beams of each track unit en-

The pictures on this page and page 418 are by courtesy of the makers, the Caterpillar Tractor Co, and show a brand new armoured D6 as delivered in 1944. Study these views carefully in conjunction with the scale and constructional drawings.



sureing that they are equally spaced and in the correct positions as scaled from the drawings. For the four carrier rollers and their brackets it is best if the modeller selects suitable components from any parts remaining from conversion projects.

With plastic putty fill in at the sides of the spacing pieces and at the top of the roller beams and also over the surface of the drive wheel guard discs carefully sculpturing the plastic putty to the surface profile shown on the photographs and sketches. When the plastic putty has set hard carefully sand the surface to a smooth finish.

From thin gauge plastic card cut the plates which are bolted to the roller beams at approximately the mid-way position and fold these over the completed pairs of roller beams and cement in position. When these are set make two fine saw cuts across the top of each plate into which portions of thin plastic card should be cemented and then shaped to represent the pairs of strengthening flanges.

STAGE 7 The track units can now be joined to the chassis of the model as follows. From laminated card cut the curved beam which represents, in a simplified form, the front suspension of the machine and cement this on the underside of the chassis scaling the location from the right hand side view drawing. In turn fix each track unit in place on the machine by inserting the final transmission casing axles into the holes in the rear axle boxes at the same time placing the drive wheels between the rear ends of the roller beams so that the axles pass through the wheels. To hold the front of the track units cement the ends of the curved beam on to the inner roller beams ensuring that when looking at the model from the sides they are parallel to the top of the engine cover.

As mentioned in Stage 4 it is considered that as the model is so small the blade arms will be fixed. This enables the fixing of the blade arms to the model to be a simple operation as follows. With the clearance between the blade arms and the sides of the chassis so small the easiest and strongest way for the arms to be fixed to the model is for these to be cemented to the sides of the chassis with spacing pieces of plastic between the arms and the chassis. Remember that the spacing pieces must be large enough for the cemented joints to be strong but not so large that they will be clearly visible.

Study the arrangement of the hydraulic jacks on the photographs and drawings and then select suitable portions of sprue which can be filed flat on one side to serve as the armoured covers over the hydraulic cylinders. In what will be the lower end of these drill a hole of the diameter of the plastic rod to be used for the operating rods and when this is done cement the hydraulic cylinders on the engine cover sides in the positions measured from the drawing. From plastic card, model the fixing brackets at the upper end of the cylinders and cement these to the model. Then prepare pieces of plastic scrap to represent the brackets which are welded to the upper edge of the blade arms, providing a hole in the brackets to receive the lower end of the operating rods. Push the lengths of plastic rod into the holes provided in the cylinders and blade arm brackets, and then cement these brackets to the blade arms. The air cleaner, exhaust, etc, if already prepared (see Stage 2) can now be fitted in their respective positions on the top of the engine cover.

STAGE 8 When all the preceding stages of construction are completed the model can be prepared for painting by filling any open joints there may be and carefully sanding any parts which may not be as smooth as the modeller wishes.

As the majority of the armoured bulldozers of the version being modelled were US olive drab overall it is suggested that Humbrol HM3 matt enamel is used for the paint finish of the model, and if the modeller is providing his model with the Beach Group or 79th Armoured Division markings shown on the drawings, a white 'Allied' star is required on both superstructure sides and a white star within a white circle on the engine cover top.

STAGE 9 When the paint work and markings are finished, tracks can be fitted to complete the model. The tracks for the Airfix Churchill tank are most suitable for use on this project as these are of the correct proportions if the edges are trimmed slightly.

NEWS FROM IPMS

THE London branch of IPMS are arranging a special film show and talk on the Vickers Vimy in conjunction with a competition for the best model of any Vickers aircraft to any scale. The film show is by kind permission of Messrs Vickers and will take place on May 2 next at 7.00 pm at Messrs Maples Ltd, 149 Tottenham Court Road, London W1. This particular meeting is open to members only.

The next London meeting of IPMS will be on April 24, in the usual venue, St Mark's Church Hall, Balderston Street, London, W1, at 7.30 pm. Anyone interested in joining the society should get in touch with P. Clisby, Hon. Secretary, at Flat 8, Block M, Peabody Estate, Hammersmith, London W6.

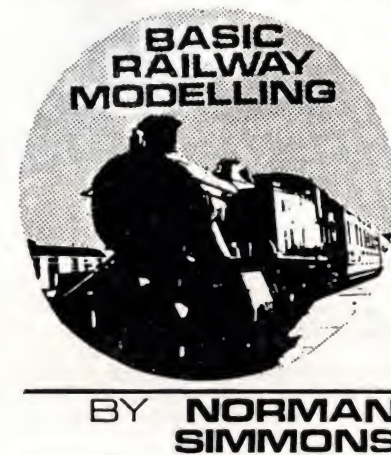
An error in last month's Photopage described the Gauntlet as having black squadron markings—these were, of course, red as many readers have pointed out. Machine was from 46 Sqn.

AIRFIX magazine



Left: The simplest Sand Wagon conversion of all can be made very easily from the Airfix Mineral Wagon. Right: Low-sided variant is only slightly more difficult to model. Below: Close view of model of high-sided vehicle shows clearly the modified brake rigging on one side only.

Sand Wagons



RE-INTRODUCTION of the 16 ton Mineral Wagon kit is one of the most welcomed things Airfix have done recently for railway modellers. It was released on a limited production basis and though I am not sure of the current supply position, I expect most railway modellers did as I did and laid a stock in while the going was good. The following is written on that assumption.

So far in this series I have adapted either the chassis or the body or, in some cases both chassis and body, of the Airfix Mineral Wagon kit to reproduce Private Owner coal wagons both timber frame and steel frame, a container wagon, an old type petrol wagon, a 24½ ton Mineral Wagon, an Iron Ore tippler and a GWR Shunter's Truck. This month I have two very simple conversions to offer, both of them for BR Sand Wagons. As can be seen by the prototype illustrations there are two different types. One of them appears to be a 16 ton Mineral Wagon pure and simple but lettered 'Sand'—but more about this later—and the other appears to be a specialist built wagon with a unique doorless body.

Before I start to describe the wagons and their construction I would like to refer to the illustrations. The prototype illustrations have been supplied by Mr D. Larkin, 21 Church Street, Cliffe, Kent, who is operating a rolling stock photo print service. Mr Larkin has made a special hobby of photographing railway wagons and he has amassed a library of nearly 1000 pictures and he is adding to them all the time. He aims to cover every wagon type still in use and because of his employment he has facilities to take many more photographs than most people could manage. The sample prints he has supplied are very good quality and they show obvious signs that he has taken pains both in the picture taking and the printing to include as much relevant detail as possible. He tries to photograph both sides of each wagon, especially where there are differences in the two sides. Very useful prototype information is supplied with the prints stating the livery, building date when known, loca-

tion, and notes drawing attention to particular features of the wagon. Mr Larkin has no lists available at present as he is adding to the collection continuously and considers that any list would be out of date in a matter of days. Instead, interested readers are invited to contact Mr Larkin at the address given stating what particular type of wagon they are interested in when he will be pleased to supply up to 40 sample prints on approval for 14 days. Any prints not required may be returned without obligation but any prints it is decided to keep may be retained for 1s each. The price is very reasonable considering the service, the quality of the prints and the information supplied.

To come back to the Sand Wagons, No B136998, the BR 16 ton Mineral Wagon type, is interesting since it is one of the wagons fitted with brake rigging on one side only. Brakes are on the far side from the photographer and only a brake lever appears on the nearside. The wagon is fitted with end door and in fact a very faint white diagonal line can just be detected on the print indicating this feature, but there

Below: Completed models of the two wagons

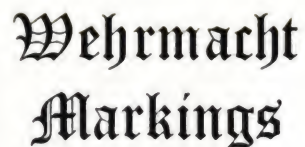


are no bottom doors. Lettering is yellow on a black background panel and the wagon has the usual BR non-fitted wagon livery of grey body and black solebar and under-frame. The wagon was built in 1954 at Derby. Other interesting features to be seen in the photograph are the different types of axleboxes fitted; the one on the left of the picture is a square shape and the one on the right is similar to the type modelled in the Airfix kit. Both pairs of wheels are 3-hole disc. To construct this model one need only refer to the Airfix Instruction Sheet and omit one set of brake gear from one side of the wagon and change the lettering—what could be simpler?

The second Sand Wagon, BR 13 ton No B746591, is however quite distinct. The bodywork is much lower and almost the equivalent of a 3-plank wagon. The method of construction appears very similar to the Iron Ore Tippler and in fact it looks very much like a cut-down version of this wagon since there are no doors at the sides, end or floor. I can only suggest that the sand is shovelled in and out! It will also be noticed that the wagon is fitted with the vacuum brake so the bodywork is painted BR bauxite with the solebars and under-frame black. Lettering is white with the exception of the rectangular panel 'EMPTY TO CONGLETON LMR' which has yellow lettering and surround on a black panel and the word 'Circuit' in black lettering on a yellow disc. The tare weight is 6.9 and the wheelbase 9' 0". It was built around 1955. An interesting detail point is the wheels. Both pairs are spoked wheels but the left hand pair are solid spokes and the right hand pair are the more normal divided spokes.

In my own case construction of the low sided wagon was simplified because of the number of spare body parts I had collected through doing all the previous Mineral Wagon kit conversions. But even if you are a newcomer to this game the model would be simple to do using 30 thou plastic card

Continued on page 444



1939-45

GUIDE FOR MODELLERS

by W. J. K. Davies

Part 3: Tactical markings

The signs in use comprised both standard pattern numberplates, and standardized symbols.

NUMBER PLATES

These were normal car-pattern numberplates, mounted in the usual positions front and rear (ie, on the bumper, body, or mud-guard as appropriate) and carrying black numbers and letters on a white background, with a black border. They comprised two letters followed by six or seven numbers and, for fighting unit vehicles, were in three distinct series:

WH: Wehrmacht vehicles, including APCs and wheeled armoured cars (only fully-tracked vehicles were not included).

WL: Luftwaffe vehicles, especially, for our purpose, those of the flak battalions.

SS: (written as the symbolized double-lightning flash). All SS vehicles except fully-tracked AFVs.

It must be emphasised that there were many other letter combinations covering other service departments and police, political, and public service vehicles, but these are beyond the scope of this series.

STANDARD SIGNS

These were line symbols, normally inscribed in yellow or white on the vehicle paintwork in the following officially recommended positions.

Motor cycles: Front and rear mudguards, in characters half the 'normal' size.

Passenger vehicles: Left front and rear mudguards; varied in the case of APCs and others with rear overhang to some portion of the rear surface.

Lorries and tractors: Left front mudguard (or front armour plate in the case of armoured vehicles) and centrally on the left half of the body backboard.

Officially the signs were standard throughout, but at some undefined stage of the war, about 1942, the map symbols for certain units (eg, anti-tank units) changed and the vehicle tactical signs were supposed to change with them. To judge from British Army intelligence reports, which were still describing pre-war signs as late as the end of 1943, this changeover was a protracted business. The picture is further confused by the fact that Western Front units in 1944 often removed these signs in an effort to confuse French resistance workers.

The comments in this article are based mainly on a Divisional order of the SS-Panzer Division 'Wiking', issued in December 1940 and laying down in great detail the sizes and shapes to be used. It is modified where required by my own notes and comments on later practice.



Above: The divisional and tactical marking scheme seen in practice. On the left is the divisional sign of 22nd Panzer Div (see January 1970 issue), above an earlier divisional sign which has been crudely overpainted. On the right is a tactical sign denoting the third company (3) of an armoured infantry battalion. The '2' is thought to be an individual number. Pennant on the sign indicates a HQ vehicle.

In particular the recommended sizes and line-thicknesses were often not followed by units which had to apply their emblems in the field; and a number of units enclosed their symbol in a neat box, possibly to distinguish it from other signs, such as the divisional emblem, painted adjacent. Occasionally signs were superimposed on a dark grey or black square for clarity. The basic signs are shown in

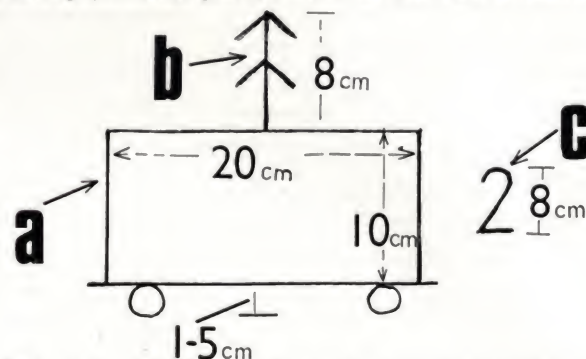
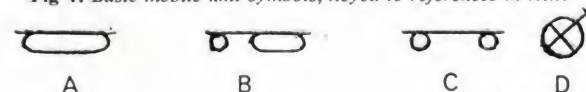


Fig 1: A dimensioned drawing showing the regulation size and proportions for the standard pattern tactical sign. (a) Basic sign denoting type of vehicle mainly used by an infantry-based unit in this case. (b) Type of unit other than actual infantry—in this case denoting engineers. (c) Actual sub-unit, eg, company, section, or battery. Motor cycles carried a symbol exactly half this size.

Figs 1 and 2, with some precise examples in Figs 3 and 5. Points to notice are:

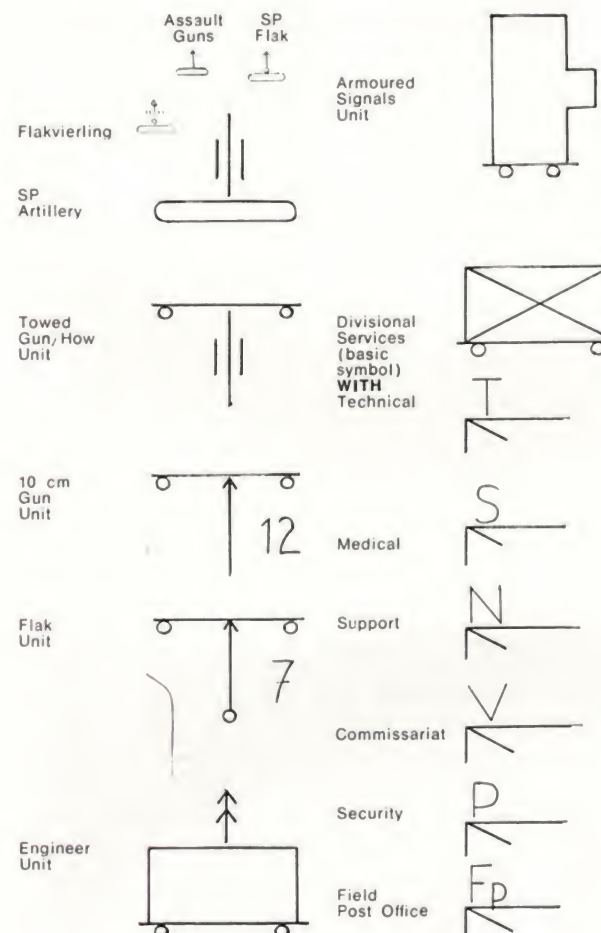
- (1) All HQs are represented by various flag or pennant symbols, the example shown being a Divisional HQ. These should be clearly distinguished from
- (2) HQ Companies, which are indicated by the following:
- | | |
|--|--|
| Regiment HQ Coy: | R to the right of the basic sign. |
| Bn HQ Coy in Regt: | I, II, etc, to the right of the basic sign. |
| Organic Abteilung of divisions and higher formations: | 'St' (<i>stabs</i>) placed centrally within the basic sign. Where this is a peculiar shape (eg, A/T Bn) the 'St' may be placed in a shortened rectangle instead. |
- (3) Mobile units (which these are, by definition) are indicated by one of four symbols acting as the sign base and shown here in Fig 4.

Fig 4: Basic mobile unit symbols, keyed to references in text.



AIRFIX magazine

- [A] Main equipment fully tracked (A/T SP guns, etc). This would normally apply to all vehicles of the unit, tracked or not.
- [B] Theoretically 'half-track'. In practice, armoured infantry and engineer units only.
- [C] Wheeled transport, including wheeled armoured cars. In practice, this too was applied to all vehicles in the unit even if some were armoured half-tracks.
- [D] Motor-cycle battalion. Comments as for (C) above.



- (4) All infantry-based units, including Divisional Services, had signs based on a 20×10 cm rectangle sitting on a slightly larger (23 cm) base line. The major variations are shown but note that:
- (a) Only organic *abteilung* vehicles officially sported the 'waving pennant' symbol on top of the sign.
 - (b) The Recce *abteilung* (basically infantry) had a diagonal line and

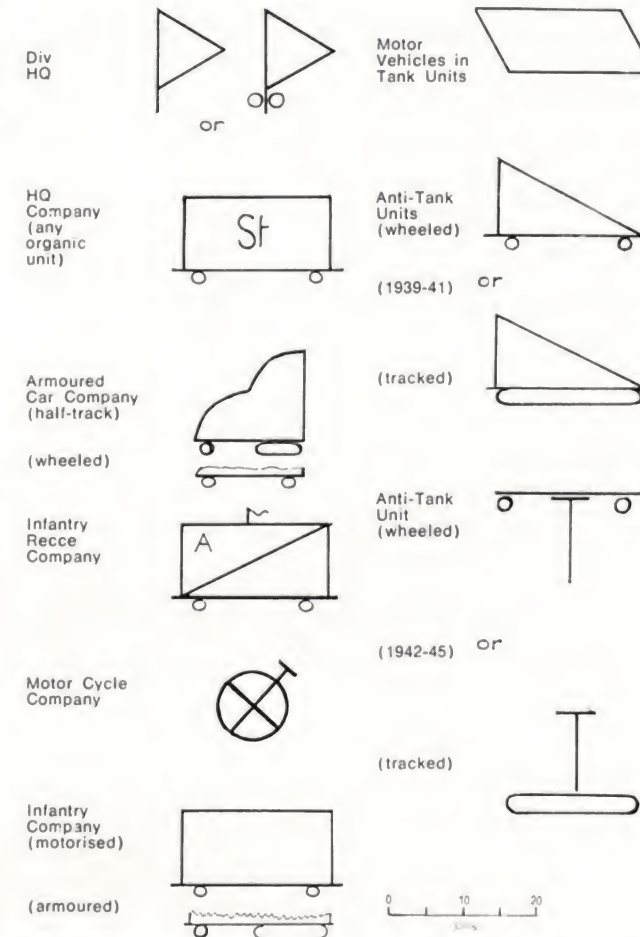


Fig 2: The basic symbols are shown on this page, all drawn to constant scale to show regulation size and proportions. Note the alternatives for anti-tank units after the symbol was changed in 1942. Two of the artillery symbols are shown with sample battery numbers to indicate positioning common to all artillery symbols. The divisional services symbol is shown once only, with the alternative corner letters only. There were variations from standard. **Bottom left:** Typical positioning of symbol on gun of a towed 10.5 cm howitzer unit; battery number here is partly obscured by snow.

also a capital A (for *Aufklarungs*, or recce) in the top left hand corner of the rectangle.

- (c) The Engineers, normally counted as combatant infantry but also including bridging units, etc, were always identified by a vertical double-headed arrow centrally above the basic sign.
 - (d) Divisional Services, who only fought as a last resort, carried a hatching of two diagonals on the rectangle, with a letter code above the top left hand corner denoting the unit or sub-unit function.
 - (e) All company sized units, including artillery batteries, carried a number, 8 cm high to the right of the basic sign, denoting the number of the company within the regiment or organic *abteilung*.
- In some artillery units the number was incorporated in the sign itself. Company numbers, it should be noted, were often 'traditional' and were based upon pre-war establishment. Thus a 1944-type Infantry regiment, now of only two instead of three battalions, still called its anti-tank company '13th Coy' and its heavy infantry gun company '14th Coy' although they were in fact the 10th and 11th units.

(6) Certain technical companies both in the engineers and divisional services (especially the *Nachschub* or supply units) also sported

Continued on next page

Wehrmacht Markings—continued

capital letters—either with or without company numbers—to the right of the basic rectangle. These were:

K: Kolonne (Column)—a technical term, there being standard columns, of varying capacity.

B: Bridging Column.

M: Engineer platoon in an infantry unit.

W: Workshops company.

As can be seen from the photos and sketches, standardisation was theoretical only, especially as the war progressed and frequent camouflage changes entailed constant repainting; divisional signs also tended to get mixed up with the tactical ones and tactical signs were frequently omitted completely or painted out in the latter part of the war.

OTHER SIGNS

In typical German fashion, all vehicles were initially issued with miscellaneous information relating to tare weight, seating capacity, shipping weight, etc. stencilled on the driver's door within a black outline panel but this was very small and was frequently very quickly painted over or covered with a patina of dirt. Modellers working in 1:76 scale can legitimately disregard it, but for those who wish to depict such a marking, one of the pictures shows the style.

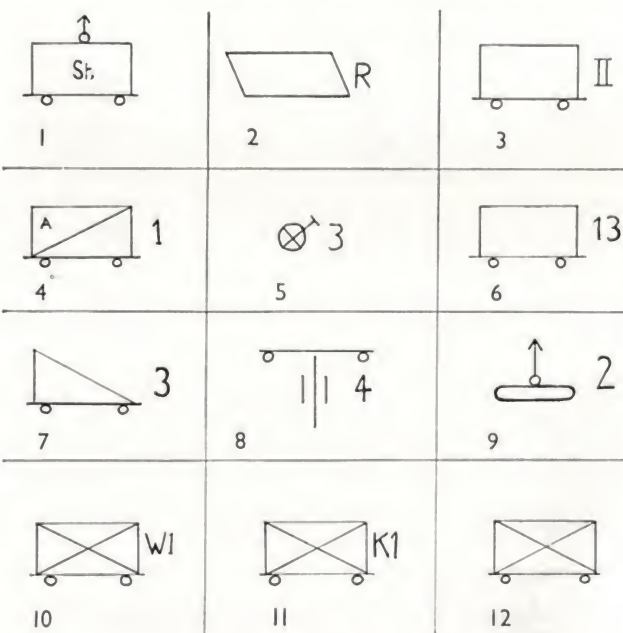


Fig 3: (left): Typical application of tactical signs. (1) HQ Company of organic Flak abteilung. (2) Panzer regiment HQ. (3) 2nd Battalion of a motorised infantry regiment. (4) 1st Kompanie of an organic reconnaissance abteilung. (5) 3rd Kompanie of a motor-cycle abteilung. (6) 13th Kompanie of an infantry regiment (this company being actually an anti-tank gun company). (7) 3rd Kompanie of an anti-tank abteilung (pre-1942). (8) 4th Batterie of a towed gun/howitzer artillery regiment. (9) 2nd Batterie of an armoured Flak (SP) abteilung. (10) 1st Kompanie of a divisional workshop unit. (11) 1st Kolonne of a divisional services unit. (12) Divisional services, basic unit. **Fig 5 (above):** Some anomalies and variations from standard, taken from actual examples. (A) Sd Kfz 250/1 of an SS-Panzer Div, shows incomplete tactical symbol, divisional sign, and cross. (B) Sd Kfz 251/1 of 21 Pz Div, Afrika Korps; note non-standard sign for 12th infantry company in a regiment with 'A', which indicates a light machine gun in tactical terms and was sometimes used to indicate a machine gun carrier in panzer-grenadier and motorised infantry companies. (C) Car of Div HQ, 6th Pz Div. (D) Rear mudguard marking of Flakvierlings on Sd Kfz 7/1 half-track. This appears to be used to indicate the Flak abteilung within the divisional Panzer regiment. (E) Towing vehicle of 19th Pz Div, 3rd Abteilung of Artillery Regiment 19. (F) Non-standard marking (yellow on black) of a towing vehicle of 20th Pz Div, 8th Batterie of Artillerie Regiment 92. (G) 5th Kompanie of an armoured car (SPW) regiment equipped with Sd Kfz 251/3 half-tracks; divisional sign adjacent. (H) Very early (1940) markings on Sd Kfz 250/1 during the invasion of France (black on grey); 16 is individual vehicle number and r-112-1 indicates Panzer-Grenadier Regiment 112, 1st Battalion. (J) Sd Kfz of HQ Company, 2nd Battalion of an infantry regiment in Guderian's Panzer Group, 1940, showing a typical non-standard application of symbols.

Right: Half-track munitions carrier of an SP artillery unit, No 1 battery, showing an example of a semi-track vehicle carrying a full-track symbol since the unit was equipped with Nashorn SP guns (Imperial War Museum).



NEW BOOKS

REVIEWED FOR MODELLERS

Latest from Osprey

CONSOLIDATED LIBERATOR B-24D-M (VOLUME 1). NAKAJIMA Ki 43 HAYABUSA I-III. AVRO LANCASTER

All compiled by Richard Ward. Published by Osprey Publications, PO Box 25, 707 Oxford Road, Reading. Price 21s each.

LATEST in the prolific output of the Aircam Aviation Series, these volumes represent the publishers' first venture into coverage of multi-engine and Japanese types respectively. Of the three we found the Liberator book the most attractive and this certainly represents good value in the number of pictures and colour illustrations presented. Coverage includes B-24s in USAAF, RAF, Czech, RAAF, IAF service, plus the Privateer, and anyone looking for colour schemes and detail modification ideas for Liberator models should find enough here to keep him going for years. The Nakajima book also follows the standard Aircam format, but like most publications dealing with Japanese aircraft, the half-tone pictures tend to range from the murky to the obscure. However, this does not detract from the value of the book to the aviation enthusiast and the colour art is very well done with some exotic finishes of appeal to modellers. Aircam series books can be had from most bookshops but our review samples came from Jones Bros of Chiswick who can supply by post at 1s 6d extra. The Lancaster book has exceptionally good artwork and most pictures are hitherto unpublished with some rarities among them.

Goods wagons

BRITISH GOODS WAGONS FROM 1887 TO THE PRESENT DAY, by R. J. Essery, D. P. Rowland and W. O. Steel. Published by David & Charles Ltd, South Devon House, Newton Abbot, Devon. Price 60s.

AT long last a book about railway wagons appears, something that railway modellers have been waiting for for ages. This is a splendid book and well worth the waiting. The first chapter contains a highly informative general review of the various features of wagon construction; underframes, brakes, buffers, couplings, etc. Nothing is left unexplained or left to chance. Even such phrases as 'post group', 'wagon lots' and 'diagrams' are described and there is an excellent illustrated glossary of terms. Subsequent chapters describe various groups of wagons such as, open, hopper, covered, tank wagons, brake vans, etc. The presentation is excellent. The reason for the date 1887 by the way is because this is when the first Railway Clearing House regulations were issued and this is explained. The 144 pages include 110 well reproduced photographs, 32 diagrams of which many will be useful to modellers, nine appendices including details of wagon liveries, and an index. Thoroughly recommended especially if you like, as we do, building model railway wagons.

From Kookaburra

REPUBLIC P-47 THUNDERBOLT, by G. Duval. FOCKE-WULF Fw 190 and Ta 152, by A. Shennan and G. Pentland. (Two volumes). Published by Kookaburra Technical Publications, Dandenong, Victoria, Australia and available in Britain from Motor Books and Accessories, 33 St Martins Court, London WC2 or BMW Models, 326 Haydon Road, London SW19. Price 9s 6d each book, postage extra.

THE Kookaburra series is well-known to all aircraft enthusiasts but only recently have these books burst into colour and very well reproduced it is too, printed in Taiwan (Formosa) no less. All three volumes recently released feature colour artwork or pictures on three sides of the four cover pages, with at least one additional page within the book. The quality of presentation is first class and the

May, 1970

colour art and line drawings are exemplary. Packed with text, facts, figures, scale drawings, and cut-aways, the addition of colour certainly enhances the value of what has always been a well-produced series. Despite the number of books already dealing with the P-47, Kookaburra's book manages to give a lot of information not readily available elsewhere, such as serial allocations and production groupings as well as good coverage of post-war foreign service. In the case of the two books dealing with the Fw 190, the authors offer a convincing argument that the most usually accepted colours of Schwarzgrün 70 and Dunkelgrün 71 splinter camouflage on Luftwaffe aircraft were more replaced commonly after 1940 by Dunkelgrün 71 and Grau 02 (roughly similar in shade to slate grey or Humbrol 31). To anyone who can prove otherwise—but they marshal some strong evidence—the Kookaburra publishers offer a free set of all their books to date plus those to be published for the next two years (write to them, not us, please). The review copies were supplied to us by the retailers mentioned above, and both these stockists also have all the earlier titles in the series.

Engines preserved

PRESERVED LOCOMOTIVES—SECOND EDITION 1969, by H. C. Casserley. Published by Ian Allan, Terminal House, Shepperton, Middx. Price 42s.

THIS is a very comprehensive survey of all known preserved locomotives, working or static, in Great Britain and Ireland. The presentation is very good since the majority of locomotives are illustrated and one or more pages are devoted to each class. There are 280 illustrations on the 312 art pages and the factual information supplied includes details about present whereabouts and readiness to view. It is an extremely useful reference book. The subjects are arranged in chronological order based on date of design and range from the Wylam Dilly 0-4-0 of 1813 preserved at the Royal Scottish Museum, Edinburgh, to the BR Standard 2-10-0 *Evening Star* built in 1960 and awaiting permanent exhibition. The more notable and interesting industrial locomotives are illustrated and described and others are included in a comprehensive list.

Vintage timetable

BRADSHAW'S JULY 1938 RAILWAY GUIDE. Published by David & Charles Ltd, South Devon House, Newton Abbot, Devon. Price 126s.

JULY 1938 was a very interesting period in British railway history. It was of course one of the last summer holiday season months to be unaffected by war, and the railway companies probably operated one of their most extensive summer timetables. Many quaint and even then outdated Victorian oddities still survived yet the LNER and LMS were competing with each other with their streamlined *Coronation* and *Coronation Scot* trains reaching speeds of up to 100 mph in daily service. Older readers who knew this period will find nostalgia in every page—long since closed stations, withdrawn services and the timetables of the minor independent railway companies who were still struggling to survive. Even the advertisements are fascinating; for example the shipping company advertising sailings to and from Aberdeen and London. A 2nd Class cabin cost 27s 6d and the voyage took 36 hours. The ships are advertised as being 'lighted by electricity'. Almost every page has a gem of some sort or another and considering that there are 1,138 pages not including the folding map, there is a wealth of entertainment more than justifying the seemingly high cost. The reproduction is excellent and the quality of the printing and binding is of a high standard.

Age of steam

TRACTION ENGINES AND STEAM VEHICLES IN PICTURES. by Anthony Beaumont. Published by David & Charles Ltd, South Devon House, Newton Abbot, Devon. Price 45s.

ATOTAL of 112 excellent photographs beautifully reproduced on 112 pages of art paper illustrates representatives of nine different classes of vehicles such as traction engines, tractors, road locomotives, rollers, wagons, ploughing engines, etc. all of course steam and all existing today. The range covers a wide variety of manufacturers and spans the years 1880-1947. The author sets a very high photographic standard and there are few cases where heavy shadow is allowed to obscure detail. Comprehensive captions are given against each photograph and an informative text describes the salient features of each of the nine main classes.

Continued on page 449

HELLDIVER DETAILS AND COLOURS

Presented by Robert C. Jones

Drawn by Tony Boulton

THE Helldiver, latest for treatment in our occasional series on naval aircraft, offers plenty of interesting possibilities for aircraft modelling fans, and it is well within the scope even of beginners to dress up the basic Airfix model in a variety of colour schemes, some typical examples of which are shown. The kit needs no special modification other than seeing that the appropriate details are fitted, ie, the correct spinner for the type and three-blade (SB2C-1 and A-25) or four blade propeller; Baker radar where necessary; correct aerial arrangement; and appropriate pilot's canopy.

Baker radar aerials are, in fact, provided in the kit but they can be improved on by re-shaping and adding 'herring bone' cross-pieces from either finely stretched sprue or fuse wire. The latter can also be used for the bead sights on the cowl of the A-25. The Shrike (merely a de-navalised SB2C-1) also has a plain straight pitot tube as shown in the drawings, rather than the curved one supplied in the kit.

Other than these few points, Helldiver variations are mainly confined to painting and finishing. Included is one of the 26 Helldivers supplied to the Fleet Air Arm; even though the type was not used operationally by the RN it can be included legitimately in a collection of FAA aircraft models. All of the standard colours shown are included in the Humbrol Authentic Camouflage paint range and all the markings are obtainable either as spares from other kits or on the sheets produced by the specialist transfer companies. The tail motifs shown could be either cut from white sheet transfer or hand painted. The French Aeronavale markings are less readily available, but they could be adapted from the sheet for the French Corsair in the ABT range, or the anchors could be applied by hand over French Air Force roundels.

Below: Another Flotille 3 aircraft (BuNo 447) at a later stage when the code was repeated on the nose (as in picture right also). Again the type designation is painted out, leaving only the small white BuNo painted aft of the roundel. The latter style of Flotille 3 motif is shown which consists of the white crescent and star painted on a blue-grey square background, the whole being surrounded by a golden yellow outline. The wings above the blue-grey area are also golden yellow, but against a dark blue background. This style succeeded that shown in the drawing. Note that the crest was not 'handed'—the points of the crescent pointed to the right on both sides when the aircraft was seen in elevation. All aircraft show evidence of worn paintwork particularly on cowlings, wing roots, and leading edges where bare metal shows through (ECA photo).

Above: SB2C-3 '107' of USS Hancock as featured in the drawing opposite. This picture illustrates well the three-tone standard finish known as 'non-specular' (ie, matt) applied to US Navy Helldivers before the adoption of Sea Blue Gloss in the later part of the war. Upper wings, fuselage, and tailplane are in matt Sea Blue. Fin, rudder, lower fuselage sides, and undersides of folding section of wings are Intermediate Sea Blue while the remainder of the undersides are in Insignia White. Wheel wells, oleo legs, insides of wheel doors, and cockpit interiors are medium green. Centre of the propeller hub is natural metal, spinner front is white, and prop blades are black with yellow tips. Just visible in the pictures is the '107' code repeated on leading edge of wing. The '107' on the tail appears on a slightly darker background, probably indicating the painting out of an earlier code (US Navy Official).

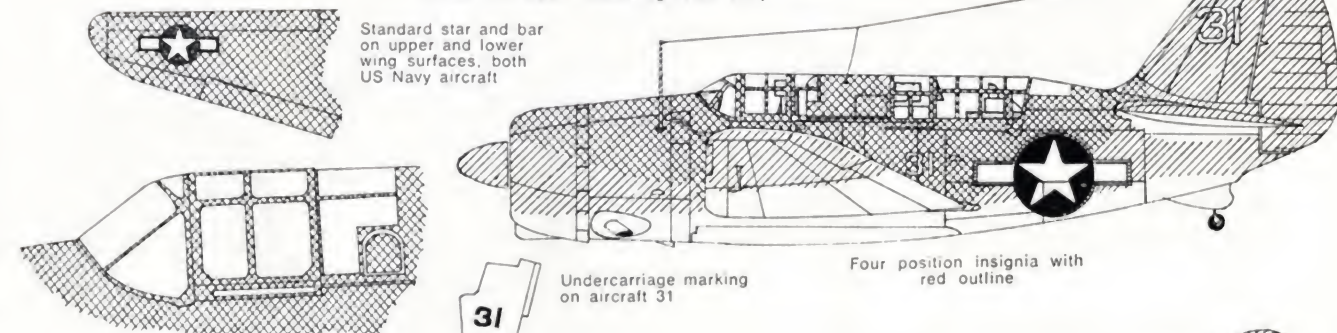


Above: SB2C-5, BuNo 403, of Aeronavale Flotille 3, also drawn opposite. One of the batch of Helldivers supplied to France under MDAP in the early 'fifties, it is in Sea Blue Gloss overall—the shade commonly but unofficially called 'Midnight Blue'. The plain white star and crescent motif of Flotille 3 should be noted. All Sea Blue Gloss aircraft had matt black interiors of wheel doors, wheel wells, etc, so that fatigue cracks would show up. Below: Another aircraft of Flotille 3, this time with only the BuNo 446 showing aft of the roundel, the type designation having been painted out. Later type Flotille 3 motif is carried (ECA photos).



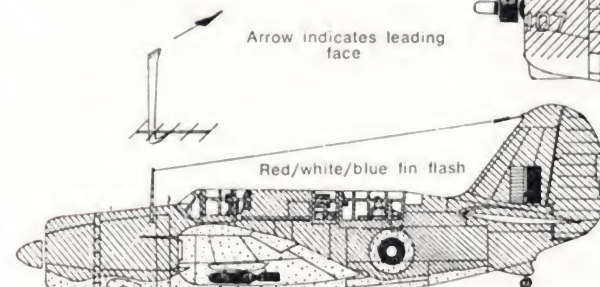
AIRFIX magazine

SB2C-1 of VB-17, USS 'Bunker Hill', Nov 1943
Fitted with Baker underwing radar array



Cockpit framing showing red bar and other markings common to all SB2Cs

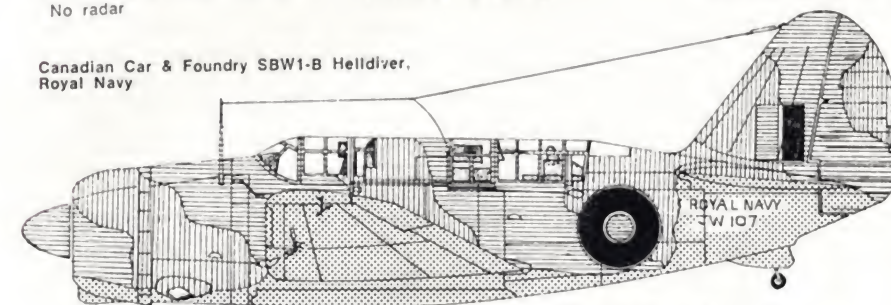
Detail view of Baker radar array carried under wings



A-25 Shrike of RAAF, 1943-44

No radar

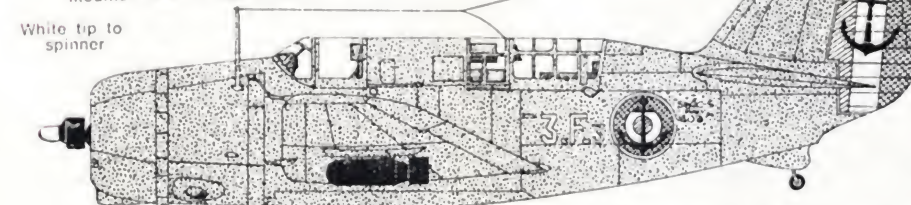
Canadian Car & Foundry SBW1-B Helldiver, Royal Navy



Note Baker radar

Aircraft with no underwing roundels

SB2C-5 of Flotille 3, Aeronavale, c. 1952
Note underwing bombs and no guns or gun mounts fitted in rear cockpit



'Killin Pug'

FREELANCE CONVERSION BASED
ON A CALEDONIAN SADDLE TANK

By Michael Andress

THE Airfix Pug kit is a very useful basis for conversion to quite a variety of locomotives and I have used this kit for several models already. My latest model is loosely based on the Killin Pugs, two 0-4-2ST engines used on the Killin Junction to Killin Pier service of the Caledonian Railway. This present conversion is the most complex so far, but none of the construction work is difficult. The modelling involved is similar to that in the simpler conversions, the only difference being that there are more steps in the construction.

Begin by lengthening the two mainframes (Parts 1 and 1A). Cut two pieces of 60 thou thick plastic card to the full size pattern shown in Fig 1. Cement these two pieces to the rear ends of the two mainframes adding a piece of thinner plastic card across the inner side of each join for strengthening. Then fix the two mainframes together and continue assembly exactly as in the kit instructions until you have completed all the steps listed in Section 1, Mainframe Assembly.

The footplate (Part 7) is fitted in the normal position, that is with its front edge flush with the front edges of the mainframes. A rectangle of 60 thou plastic card 15½ mm by 30 mm must be added at the rear. This leaves two

cut out rectangles at the sides of the rear part of the original footplate (Part 7) which need to be filled in with pieces of 60 thou plastic card. The rear wheels should be added at this stage. I used a pair of TT gauge wheels of 9 mm diameter; after tapping the wheels gently to loosen them on their axle I moved them out to 16.5 mm gauge. As mine is a non-working static model I merely glued the axle in the position shown in Fig 1. If you want your model to be moveable arrange the trailing wheels so that they can rotate freely. Of course if you can find a pair of OO gauge wheels of this diameter this will be more convenient than altering the gauge from TT, but I was unable to find any at my local model shop.

The cab assembly is the next stage in construction. Divide the cab back (Part 13) into upper and lower parts by cutting across with a razor saw immediately above the raised strip. Apart from the steps which will be added later the kit cab sides (Parts 14 and 14A) are not used. Cut two new cab sides from 15 thou thick plastic card to the pattern shown full size in Fig 2. Extend the lower edge of the upper section of the cab back with a rectangle of 15 thou thick plastic card 6 mm high and 26 mm wide. The cab

roof must be shortened by cutting 5½ mm from its rear edge using the razor saw again; the cab front (Part 12) is used unaltered. Fit the regulator handle (Part 11) to the fire box on the cab front (Part 12).

Now fix the lower part of the cab back to the footplate, followed by the cab sides, cab front and the upper part of the cab back. Check that all these parts are fitted true and square before the cement dries completely. The hand-brake (Part 16) should be added next; cut the locating peg off the bottom of the column and fix the handbrake to the footplate at the right side just in front of the cab back. Now add the cut-down cab roof (Part 15). The back of the coal bunker is completed with a lower upright 26 mm by 1½ mm rectangle of 15 thou thick plastic card and an upper sloping rectangle 26 mm by 5 mm of the same material. Remove the steps from the two kit cab sides (Parts 14 and 14A), cut them down to the shape shown full size in Fig 3 and fix them to the footplate beneath the cab doorways.

The boiler halves (Parts 8 and 8A) are now altered. Cut off the two halves of the chimney using a sharp modelling knife; do this with care as these parts are needed for the model. If you wish to replace the moulded boiler handrails with proper handrails and posts as I did, these are best fitted before the two halves of the boiler are cemented together. Cut away the moulded handrails using a sharp knife; use a fine file and sandpaper to leave a smooth finish. Then drill two small holes in each boiler half for the handrail posts. These holes should be 7 mm up from the lower edge of the saddle tank and 6½ mm in from front and rear edges of the boiler halves

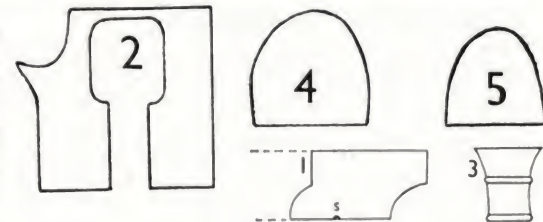
Now fit the four posts; the ones I used are from Bec Models but most large model railway shops stock them. The handrails are 38 mm lengths of 15 amp fusewire; before cutting these lengths off, straighten the wire by stretching it. Slip each handrail through the holes in the corresponding posts and then apply a liberal smear of glue to the part of each handrail post which protrudes through the inner surface of the corresponding boiler half. When the posts are firmly fixed make sure the handrails are in the correct position with an equal amount extending beyond front and rear posts and then apply a little glue to the junctions of rails and posts. Note that only a trace of adhesive is needed; more will only make a mess.

The boiler halves can then be cemented together. Fix a small piece of scrap plastic card beneath the hole left when the chimney halves were removed, on the inner surface of the boiler. Then fill in the hole with plastic filler. Cut 3½ mm off the height of the rounded dome and fill in the central hole with filler. When the filler has set firmly smooth off the top surface and round the edges slightly. Two 1½ mm lengths of 1 mm diameter dowel or plastic rod are cemented on top of this dome. Fix a piece of 15 thou thick plastic card over front and rear ends of the assembled boiler halves. Cut these pieces slightly over-size, cement in place and then trim them down to give a neat finish. Cut two pieces of the 15 thou plastic, 42 mm by 4½ mm, and cement these along the sides of the assembled boiler halves below the saddle tank to cover in the springs.

The boiler will be fitted the opposite way round to that in the unmodified kit, ie, the end where the chimney was will now be toward the rear. Cut two pieces from 15 thou thick plastic card, to the full size pattern in Fig 4. Cement one of these to the front of the cab front (Part 12) taking care that it is centrally placed and with its base in contact with the footplate. The other is cemented to what is now the rear of the boiler assembly (the end from which the chimney has been removed) again taking care that it is centred. Now fix the boiler assembly to the footplate so that there is a 7½ mm gap between the front of the cab front and the rear of the boiler (not counting the two thicknesses of 15 thou material we have added). Cut a strip of the 15 thou thick plastic card 7½ mm wide and about 45 mm long.



Heading picture: The 0-4-2T conversion raises steam at Michael Andress's model locomotive depot, with previous conversion subjects in the background. Remaining pictures show close-ups of the model. Right: Full-size drawings for the conversion parts, all numbered and keyed to references in text; 's' is slot for trailing axle.



This is to fit in the gap, over the two formers already fitted. Place in position and trim down the length until you have a perfect fit, then fix with cement.

The smokebox is the last item to be fabricated. Cut two pieces of 15 thou plastic card to the full-size pattern shown in Fig 5. Using some scrap plastic pieces as a spacer fix these two parts so that the distance between their outer surfaces is 8 mm. Cut a strip of the 15 thou plastic 8 mm wide and about 35 mm long and fit this over the two formers. Trim the length down as required and cement to the formers. The smoke box door is a 9 mm diameter disc of 15 thou thick plastic card. The hinges and handles are cut from scraps of Micro-strip. Cement the two halves of the chimney together and then fix to the top of the smokebox, after filing the base off the chimney if necessary to obtain a good fit. The front buffer beam (Part 10), the four buffer heads (Parts 18), and the couplings can now be fitted. As mine is a non-working model I used the scale couplings (Parts 17A) and I improved their appearance by filing out the centres of the links, as described in a previous article. The reversing rod (Part 19) is fitted into its holes in the footplate and a strip of plastic is added between it and the cab front.

I painted my model matt black with red buffer beams, but if you want a more colourful model why not try the original livery of Caledonian blue with maroon underframes and black and white lining? Though this conversion is not intended to depict the 'Caley' Pug faithfully (and for dimensional

reasons you would have to scratch-build for a true scale replica) it does capture the look. Armed with pictures of the real thing, however, from appropriate reference books, you could make the model look even more like the Killin Pug.

So long as the rear bogie is made so that the axle revolves freely and that weight (like Polyfilla) is added inside the boiler during assembly, you'll have a charming little branchline locomotive. For propulsion I suggest the inexpensive (15s) Kitmaster motorised box-van — available from Beatties of London — which can be coupled between the loco and the coach (or coaches) to give adequate power.

A drawing and brief details of the actual Killin Pug appeared in the October 1966 *Railway Modeller*.



Above: Collection of fully detailed aircraft models to an incredibly tiny 1:1200 scale consists of a Twin Otter, Martlet, Gnat, Seafire III, and Swordfish (with torpedo!). At back is a CL-84 model to 1:400 scale. Maker is Ken Dommett, of Canadair Ltd, Montreal, Canada, who keeps them all in a cuff-link box. Span of the very tiny Gnat is a mere .24 inches! The CL-84 model has a hollow fuselage and moveable control surfaces.



Prototype Pair

Two simple 'one-off' types which make interesting models, described by S. J. Kirby

1. SLIP-WING HURRICANE

THIS unconventional version of the Hurricane just goes to show that odd looking STOL aircraft are nothing new. A Hawker Hurricane I, L1884, was shipped to Canada in 1939 to become RCAF 321. It shortly returned to England and was bought by Hill & Sons Ltd, along with a spare Hurricane wing. Hillsons fitted it up as a biplane with a jettisonable top wing to provide extra lift on take-off from very small fields. This interesting project was not, unfortunately adopted by the Air Ministry.

The conversion is quite simple really; in fact if you already have a Hurricane you can do this conversion without cutting it up!

All you need are two Airfix Hurricanes and a length of 20 SWG piano wire. The Airfix Hurricane IV is so similar to a Mk I that it can easily be used.

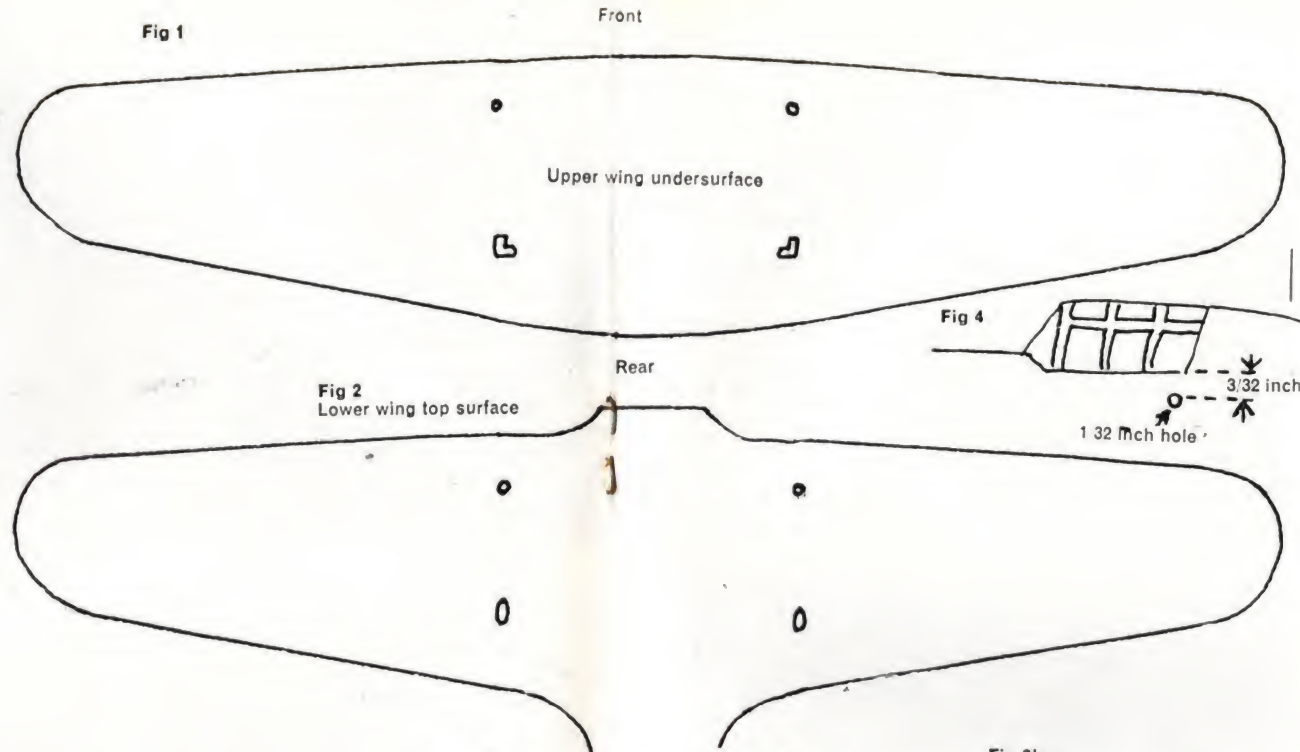
BASIC AIRCRAFT Assemble one Hurricane, leaving off the canopy and the lower mainplane half. Drill holes in the mainplane top half and in the fuselage sides as shown in Figs 2 and 4 respectively.

UPPER WING Holding the wing halves together, trim the leading and trailing edges to the shape shown in Fig 1. Separate the halves and fill undercarriage bay holes with spare undercarriage doors and/or plastic sheet. Fill in the rocket rail holes and aileron grooves (The upper wing has no ailerons). Now drill holes in the upper wing undersurface as shown in Fig 1.

STRUTS The size, shape and position of these are shown in Figs 3a and 3b. All struts are shown full size and true shape and can be made from the drawing. Note that the space between the wing surfaces is 1 inch.

The simplest way of assembling the struts is as follows: Lay struts A, B and C on a flat surface, lying against each other as in

Below: Views of the slip-wing Hurricane model show the completed appearance, and the wing and strut detail prior to final assembly.



Upper set of drawings, Fig 1- Fig 5 are applicable to the slip-wing Hurricane conversion. Lower set, Figs 1-5 apply to the twin-tail Beaufighter. All side and top views are to 1:72 scale, full-size for models.

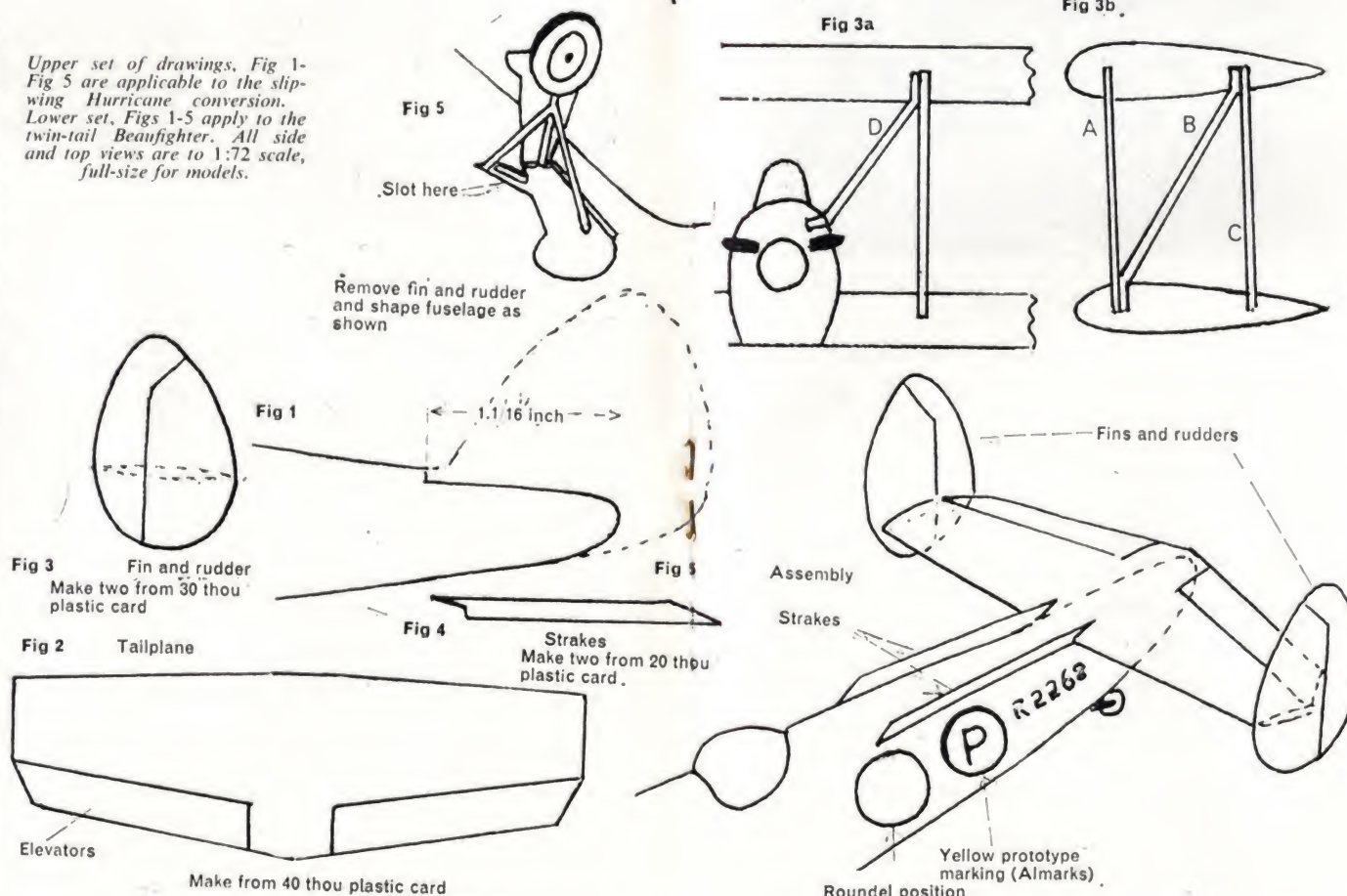
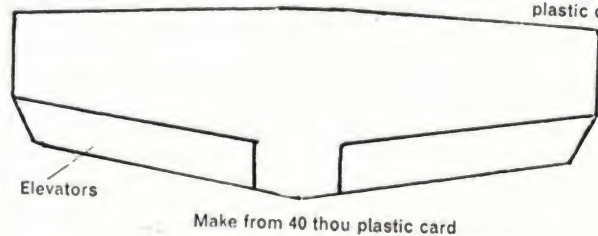


Fig 3 Fin and rudder Make two from 30 thou plastic card

Fig 2 Tailplane



Elevators

Make from 40 thou plastic card

Fig 4 Strakes Make two from 20 thou plastic card

AIRFIX magazine

May, 1970



Above: Another view of the completed slip-wing Hurricane model shows how the struts are arranged; compare with Figs 3a and 3b below left. Note also the added strut and slot detail which greatly improves the under carriage appearance. This can be incorporated in all Airfix Hurricane models to advantage.

Fig 3b and solder the touching ends together. Make two such 'N' shaped assemblies. Stand these in the holes in the top of the lower wing. Make two struts D and fit the lower ends into fuselage, whilst resting the upper ends on struts C. Solder these top ends. Dab Araldite on to the ends of struts D where they protrude into the cockpit. The canopy can now be fitted.

COMPLETING WINGS Place upper wing lower half in position to check alignment of struts. Now dab Araldite on to all strut ends where they protrude into wing interiors. When set, glue in place the lower-wing undersurface and upper-wing top surface. Note that the upper wing will require some filling in the leading and trailing edges. Use balsa wood or scrap plastic for this.

UNDERCARRIAGE This is standard kit equipment, but added to for extra realism and strength. Two small struts per leg are added as shown on the sketch in Fig 5. The slot can be cut out or painted on.

FINISHING Paint the model Dark Earth and Dark Green camouflage as shown in photos, with Duck Egg Blue undersurfaces. The serial number, L1884, is under the tailplane. This can be painted or done with Letraset. The yellow 'P' marking is from the Yeoman or Hales RAF or USAF sheets or else from the recent Almarks sheet.

2. TWIN-TAIL BEAUFIGHTER

HERE is a simple conversion of the Beaufighter which changes its appearance radically, though the actual machine existed as a prototype only.

The Beaufighter had a long history of instability, and one attempt at a cure involved the fitting of a wide tailplane and twin fins and rudders. This was not immediately effective, so two large dorsal strakes were fitted which appeared to solve the problem.

The aircraft used was a Mk IF R2268 and it is this aircraft which, in its final form, is the subject of the model.

The conversion is as follows:

FUSELAGE Assemble the fuselage halves and let dry. Now saw off the fin and rudder and shape the rear of the fuselage as shown in Fig 1. Overall fuselage length should be 5 7/8 inches and the flat cut-out for the tailplane should extend 1 1/8 inches forward of the extreme rear of the fuselage.

TAILPLANE This is made from 40 thou plastic card shaped as shown in Fig 2. Sand to aerofoil section and scribe on elevators where shown.

FINS/RUDDERS These are made from 30 thou plastic card shaped as shown in Fig 3. Sand to airfoil section and scribe on rudders where shown.

Continued on page 444

Rear view of the Beaufighter twin-tail prototype model shows clearly the strakes and fin arrangement. This makes a most attractive addition to a model collection.





Part 11: The Loyd Carrier

THE Loyd Carrier was built by the firm of V. Loyd and various motor companies including Dennis, Wolseley, and the Ford Motor Company of Canada. The vehicle was adapted for various roles that ranged from troop carrying to experimental self-propelled gun mounts.

The basic carrier was of an open type construction, with the engine fitted at the rear of the vehicle, and the drive taken forward to a front final driving axle. The front axle was fitted with driving sprockets to engage the track. Steering was effected by two steering levers, fitted in front of the driver's seat, operating on the brakes. Armour plate could be fitted to suit the various roles of the vehicle. The development history of this vehicle and its relevance to the Universal Carrier was given in Part 2 of this series.

The following is an outline of the various Loyd types and special purpose conversions. The official (and often cumbersome) designation is given in each case.

Carrier, Tracked, Personnel Carrying, No 1, Mk I: This was the basic vehicle for the troop carrying role. It was characterised by the exposed front axle and differential housing. Horstman-type suspension was standard with four bogie wheels and two return rollers per side. The vehicle was fitted with Bendix brakes and had a British-built engine.

Basic specification: Weight: 4 tons; crew: 2 plus 8 men; armour: mild steel; engine: Ford V-8, 85 bhp; max road speed: 30 mph; length: 13 ft 7 inches; width: 6 ft 9½ inches; height (minus hood): 4 ft 8¼ inches; height (with hood in position): 7½ ft.

Carrier, Tracked, Personnel Carrying, No 2, Mk I: Similar to the Loyd TPC No 1, Mk I, this version was fitted with a re-worked American-built Ford V-8 95 bhp engine, EGAE.

Carrier, Tracked, Personnel Carrying, No 2A, Mk I: This was similar to the Loyd TPC No 1, Mk I but was fitted with a re-worked American-built Ford V-8 90 bhp engine, EGAEA.

Carrier, Tracked, Personnel Carrying, No 3, Mk I: Simi-



The standard Loyd Carrier (Carrier, Tracked, Personnel Carrying No 1, Mk I).

lar in all respects to the TPC No 1, Mk I, but built in Canada.

Carrier, Tracked, Personnel Carrying, No 1, Mk II: Basically Carrier, TPC, Mk I, but fitted with Girling brakes.

Carrier, Tracked, Personnel Carrying, No 2, Mk II: As for TPC No 1, Mk II, but with re-worked American-built Ford V-8 90 bhp engine, EGAE.

Carrier, Tracked, Personnel Carrying, No 2A, Mk II: As for TPC No 1, Mk II, but with re-worked American-built Ford V-8 90 bhp engine, EGAEA.

Carrier, Tracked, Personnel Carrying, No 3, Mk II: This vehicle was as for TPC No 1, Mk II, but Canadian-built.

Carrier, Tracked, Starting and Charging, No 1, Mk I: The starting up of tank engines from cold, and the necessity to maintain a wireless watch proved to be a great drain on tank batteries, so the Loyd carrier was equipped with a Battery Charging Unit, and other equipment to act as a Slave Unit to start vehicles unable to start under their own power and to charge or replace AFV batteries. This Slave



Above: Carrier, Tracked, Mechanical Cable Layer Mk I, shown in operation. Right, opposite page: The Carrier, Loyd, Mobile Welding Plant.

vehicle was basically Carrier, TPC, No 1, Mk II, fitted with the necessary equipment.

Carrier, Tracked, Starting and Charging, No 2, Mk I: As for Carrier, TS and C, No 1, Mk I, but with re-worked American-built Ford V-8 90 bhp engine, EGAE.

Carrier, Tracked, Starting and Charging, No 2A, Mk I: As for Carrier, TS and C, No 1, Mk I, but with re-worked American-built Ford V-8 90 bhp engine, EGAEA.

Carrier, Tracked, Starting and Charging, No 3, Mk I: This was as for Carrier, TS and C, No 1, Mk I, but Canadian-built.

Carrier, Tracked, Towing, No 1, Mk I: With the demand for mobile anti-tank guns due to the situation in the Western Desert, the Loyd Carrier was adapted to tow the 2 pdr and later the 6 pdr anti-tank guns, with the necessary stowage arrangements for gun crew, ammunition and gun accessories.

Carrier, Tracked, Towing, No 1, Mk I was basically Carrier, TPC, Mk II adapted for the 2 pdr anti-tank gun role.

Carrier, Tracked, Towing, No 2, Mk I: Basically Carrier, TPC, No 2, Mk I adapted for the 2 pdr anti-tank gun role.

Carrier, Tracked, Towing, No 2A, Mk I: Basically Carrier, TPC, No 2A, Mk I adapted for the 2 pdr anti-tank gun role.

Carrier, Tracked, Towing, No 3, Mk I: This was basically

Carrier, TPC, No 3, Mk I adapted for the 2 pdr anti-tank gun role.

Carrier, Tracked, Towing, No 1, Mk II: This was basically Carrier, TPC, No 1, Mk II adapted for towing a 6 pdr anti-tank gun or 4.2 inch mortar and equipment.

Carrier, Tracked, Towing, No 2, Mk II: Basically Carrier, TPC No 2, Mk II adapted for towing the 6 pdr anti-tank gun or 4.2 inch mortar and equipment.

Carrier, Tracked, Towing, No 2A, Mk II: This was basically Carrier, TPC, No 2A, Mk II adapted for towing the 6 pdr anti-tank gun or 4.2 inch mortar and equipment.

Carrier, Tracked, Towing, No 3, Mk II: This version was as for Carrier, TPC, No 3, Mk II but adapted for the 6 pdr anti-tank gun or 4.2 inch mortar towing roles.

Carrier, Tracked, Towing, No 1Z, Mk II: This vehicle was similar to Carrier, TT, No 1, Mk II, but was fitted with an American Ford type axle.

Carrier, Tracked, Towing, No 2Z, Mk II: As for Carrier, TT, No 2, Mk II, but fitted with an American Ford type axle.



Carrier, Tracked, Towing, No 2AZ, Mk II: This was as for Carrier, TT, No 2A, Mk II, but was fitted with an American Ford type axle.

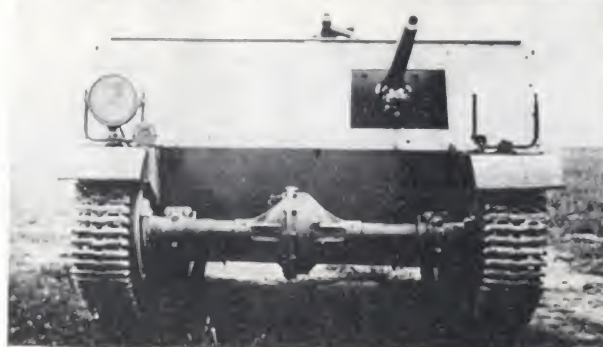
Carrier, Tracked, Towing, No 3Z, Mk II: Again this vehicle was similar to Carrier, TT, No 3, Mk II, but was fitted with an American Ford type axle.

Carrier, Tracked, Mechanical Cable Layer, Mk I: This vehicle was based on the Carrier, TPC, No 1, Mk II, but had modifications to the superstructure for the fitment of cable laying stores, a ladder and poles being carried in brackets on either side. Mounted on the front of the vehicle were three drums of cable and carried in the centre of the vehicle was the mechanical cable laying machine which paid out telephone wires to the rear as the vehicle moved forward. This vehicle was widely used by the Royal Signals and to some extent by other arms like the artillery.

Carrier, Loyd AA: This was an experimental anti-aircraft conversion and featured a centrally mounted traversing platform with an armoured covered seat for the gunner and the quad Bren LMG with associated sighting equipment. An armoured box was also fitted for the driver. It was produced in 1942-43.

Carrier, Loyd, Self-Propelled Gun: The project for using the Loyd Carrier as a self-propelled mount for the 2 pdr anti-tank gun was projected in late 1940 and developed in 1941. Based on Carrier, TPC, Mk I and II, three versions of this equipment were built in small numbers and tested. Due to mechanical and other faults, modifications were found necessary so production on a large scale never began, the

May, 1970



Top to bottom: Carrier, Tracked, Towing, No 1, Mk II with 6 pdr anti-tank gun. First, second, and third versions respectively of the Carrier, Loyd, SP Gun (Imperial War Museum photos).

project being abandoned in December 1942 as the result of the introduction of more powerful anti-tank weapons.

In the first version, the 2 pdr gun was mounted in the front compartment, left of the driver, with the gun barrel protruding through an opening that had been cut in the front superstructure.

In the second version, the 2 pdr gun was fitted with a front shield, and was mounted centrally on the vehicle. This posi-

Continued on page 438



A fine flying view of a Spitfire LF Mk 16e, RW396:JWL-F, from the Central Gunnery School in the late 'forties. Detail to note is the pilot's headrest support, the gyro gunsight behind the windscreen, and the shape of the oil cooler air intake under the nose. Camouflage pattern is just discernible on nose where original wartime paint has been stripped off.

Simple Spitfire conversions

MK 16 AND OTHER VARIANTS DESCRIBED BY ALAN W. HALL

NO detailed feature on Spitfire kit modifications has appeared in AIRFIX magazine since 1963. To remedy this omission I have produced a conversion this month and provided sufficient additional information for several variants other than to be built from either the Airfix, Frog, or Revell kits. I have made the Spitfire LF16e as this features numerous changes from the basic Airfix kit, and the method of making the tear drop canopy can be applied to variants such as the FRXIV, FRXVIII, F22, F24 and some of the Seafires. The changes applied to the rudder too can apply to other marks and the clipped wings were standard on all of the low flying Spitfires that were produced from the Mk V onward.

References to the Spitfire are legion. Any aircraft modeller who has spent a little money on books has something available on this aircraft but out of all of them I find the Harleyford book by Bruce Robertson the most useful. I have based my conversion described in this article on the LF16e shown on page 183 of that book, but wishing to keep an operational aircraft in my collection I produced markings for an aircraft of No 601 Sqn RAuxAF. A further marking scheme is shown in the scale drawing.

STAGE 1 The two fuselage halves are stuck together and left to dry. After at least 12 hours the rear fuselage decking on a line from the cockpit lip is removed by using a fret or razor saw. Take the cut through the base of the fin and rudder just above the locating holes for the tailplanes and cut through the rudder hinge to completely remove this section.



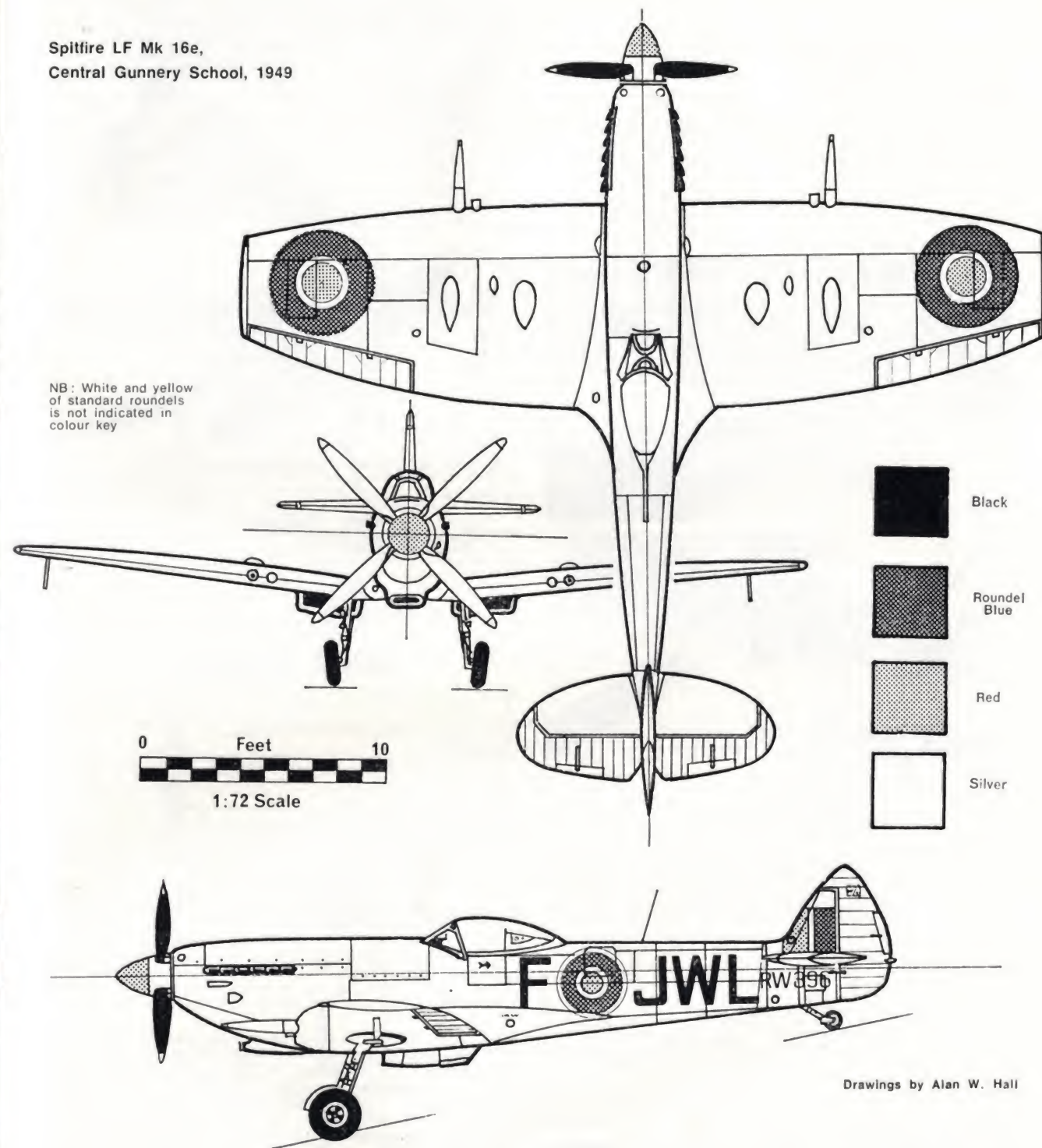
Above: The rear fuselage top is cut away, as is the fin and rudder. A balsa insert is roughly shaped to fit and stuck in place. This is then shaped to make the new fuselage top.

STAGE 2 Smooth off the surfaces left after making the saw cut and prepare a piece of balsa to fill the area. This can be roughly shaped before sticking in place and should be 1/4 inch thick. Set the new section in place and again leave the fuselage to dry out. Whilst this is going on the attention can be directed to the wing shape. Much of the nice detail on the wing surface will be lost during the modifications to this part but this is unfortunately unavoidable if the shape is to be changed. Cut off the wing tips and cannot then re-shape the aerofoil section with the use of varying grades of file and sandpaper until the correct shape is attained in both plan and front elevations. Some of the detail can be replaced such as important items like ailerons by using a file or saw cut. At the same time as the wing is being reshaped cut off the cannon breech fairings which are in a different place on the clipped wing version of this variant.

STAGE 3 The balsa addition to the fuselage is now shaped to its final form before the filler is applied. At this stage cut off the rudder from the fin removed from the fuselage earlier. Clean it up and stick it back in place on the rear of the fuselage. By adding a very thick mixed solution of talcum powder and clear dope the fin can be moulded back into the fuselage section and forms an excellent anchor for the new rudder which has meanwhile been cut from 1/4 inch balsa sheet.

AIRFIX magazine

Spitfire LF Mk 16e,
Central Gunnery School, 1949



Rub down the fuselage and fin with fine grade sandpaper before putting the rudder in place. Then give the whole rear fuselage and rudder another finer coat of filler to complete the operation. A light sanding should then be sufficient to prepare the section for painting after the addition of the tailplanes. The locating holes for these may have to be re-cut as the filler is almost bound to affect their size.

STAGE 4 Cockpit detail, the seat and the rear strut behind it can now be added and the interior painted. If your spares box doesn't include an alternative rear view canopy this should now be made by carving a small mould to fit the shape. I found that the front part of the existing kit canopy to be accurate enough and therefore cut this off and merely made a new rear section.

Continued on next page

May, 1970

Above: The Spitfire LF16e, TE330:HT-B, of 601 Sqn, RAuxAF, at Hendon in post-war years, as modelled by Alan Hall. Lettering under the cockpit reads 'To slide hood back press button' in 2 inch capitals (Photo by F. G. Swanborough).

Simple Spitfire conversions—continued

STAGE 5 Returning to the wings, new cannon breech fairings have to be made from 1/8 inch balsa. These are cut to shape in plan, stuck on to the wing surface and then sanded down. To try to do this before cementing to the wing is near impossible so the method suggested is given advisably or otherwise problems will arise. I found that by covering the area with the dope/talcum powder filler, mixed fairly thickly, both bulges merged well with the wing surface. Cannon and cannon stubs (note that the latter are inboard of the cannon themselves) are made from thin dowel rod. The kit cannons previously cut off can be used but they are, I feel, rather on the thin side and it is better to make new ones. A 'V' shaped cut is made in the wing leading edge to accept both pieces and a coat of thin filler is given after they have been stuck in place. The wings can now be cemented into the fuselage locating holes, left to dry at the correct dihedral angle and the joints liberally covered with body filler.



Top: Existing cannon bulges on top of the wing are removed and replaced by new ones in the correct position. These are then sanded to shape and covered with filler. The wing tips are cut off and wing section reshaped. **Above:** The rear fuselage is cut and sanded to shape, the fin replaced and the cockpit detail added.

STAGE 6 During an odd moment whilst these operations are being done or parts are drying out the oil cooler under the centre fuselage has to be cut off and re-positioned. It came away easily enough by the use of a fine toothed saw, was cleaned up and re-positioned at least an 1/8 inch further forward. The hole left in the fuselage can be filled with plastic wood and rubbed down before finally fitting the oil cooler in its new position. At the same time I also filled the stand slot under the centre fuselage.

STAGE 7 All joints are now filled in and rubbed down. The radiators under the wing are fitted, as is the tailwheel and propeller. A radio whip aerial can be made from a toothbrush bristle. I used the Frog Spitfire undercarriage for my model as I consider it to be more accurate, but the Airfix one will do, of course, providing separate doors are made from plastic card. The pilot head from the Frog kit was also utilised for the under-port wing position. Undercarriage wheels and sliding hood of the cockpit canopy are kept separate until after the painting has been completed. The wheels are stuck on to a cocktail stick so that they can be turned round whilst painting. Note the four small black segments in the centre of each wheel which adds the character to this detail on the Spitfire. Any touching up can be done after the wheels have been stuck on to the axles.

Below: The wings are fitted to the fuselage and the joints filled with body putty and rubbed down. Cannon are made from thin dowel rod and fitted into notched recesses in the wing leading edge. The picture shows the canopy being prepared.



Top: Touching up the paint work. The wheel wells remain to be done. Note the new position of the central oil cooler which has been moved forward 1/8 inch. The undercarriage used on this particular model came from the Frog Spitfire F14 kit, but the original can, of course, be used. **Above:** The completed model.

PAINTING AND TRANSFERS The all-over silver of post-war Spitfires can be attained by the use of one of the Humbrol spray paint cans. A much better finish can be obtained in this way rather than try to do the job by hand. Be careful to mask out the cockpit area if you do adopt this method as silver is very difficult to cover once on. The transfers suitable for both the No 601 Sqn aircraft and the Central Gunnery School one can be found on the Dri-dec sheets with the exception of the wing roundels. The painting and transfer applications to this model were in fact the simplest of the operations and although fairly quick to accomplish were gratifyingly attractive when complete.

OTHER VARIANTS

THERE are a great many more Spitfire conversions possible and I would go so far as to say that an enthusiast for this aircraft could well build up a complete collection made up of aircraft of this type alone.

Like many other popular aircraft of World War 2 there is luckily a great deal of reference material available both in photographic form and in drawings and camouflage pattern illustrations. The Harleyford book by Bruce Robertson, already mentioned, is one of these and there are of course the much cheaper but equally attractive Profiles and Aircam series. Robertson's book, however, is the most comprehensive and is worthy of concentrated study by anyone considering converting the existing kits of this model.

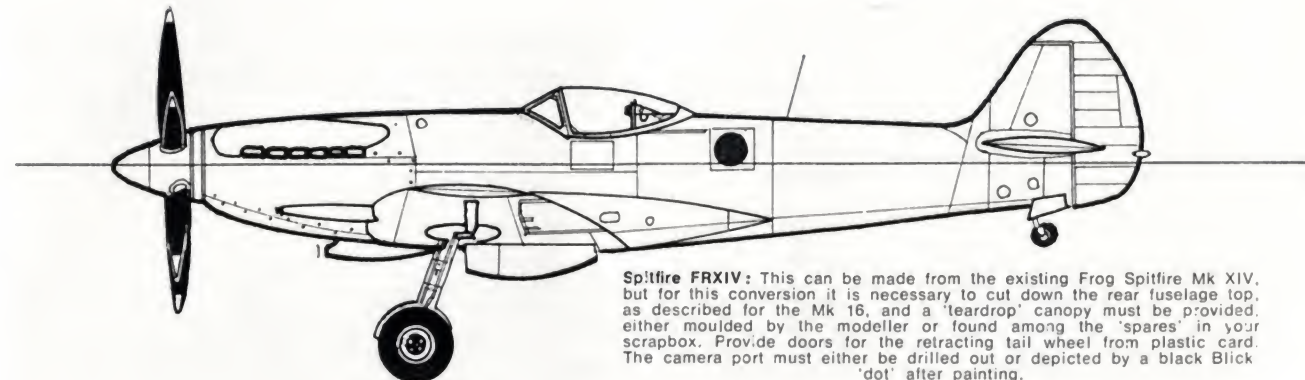
There are now five 1:72 scale Spitfires on the market. The popular Airfix one of the Mk IX is perhaps the best on which to make a large number of modifications but Revell's Mk II, Frog's Mk I, and the newer Frog Mk XIV are equally suitable. The latter is useful as it has the Griffon engine and can be adapted for many of the later marks. Hawk's Spitfire, a F22, is not perhaps as good as the other three but does cover a late variant which would otherwise require a considerable amount of modification, cross-knitting, and original work.

By using combinations of all three kits the modeller can produce very worthwhile and accurate representations of the original. The undercarriage of the Frog kit is the best of all the Spitfire models and is worth using on other models if you can afford it. The Hawk kit suffers in not having an undercarriage at all so at least one other kit must be cannibalised before this version can be completed.

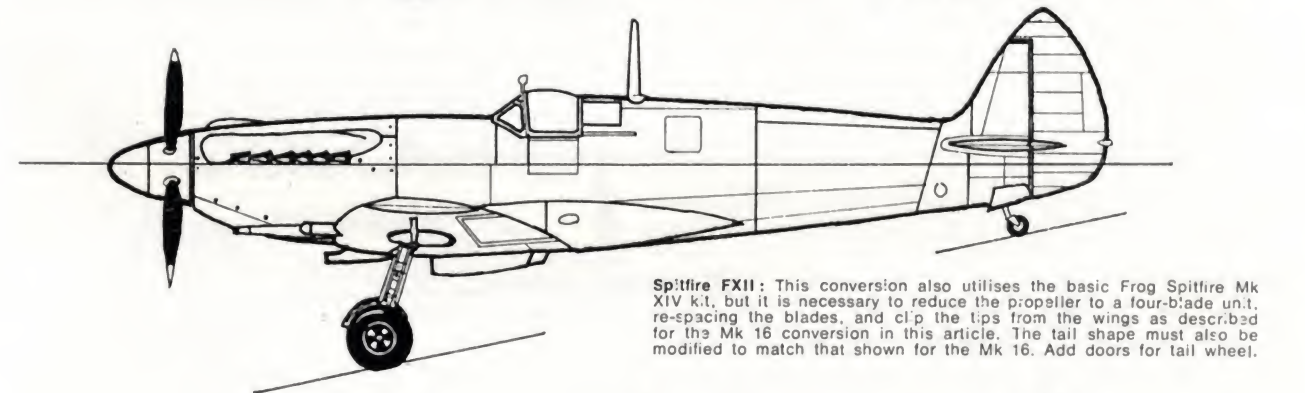
In the drawings I have done to accompany this article I have shown a number of side views together with the main differences in outline where the model maker will have to convert the existing kit. The three most popular kits have been considered but there are many more variants that can be done from these basic models. The illustrations are shown without markings to avoid confusion. Any modeller can find a multitude of references to many colour schemes from the books mentioned earlier—my object has been to show what can be done from simple beginnings.

Continued on page 438

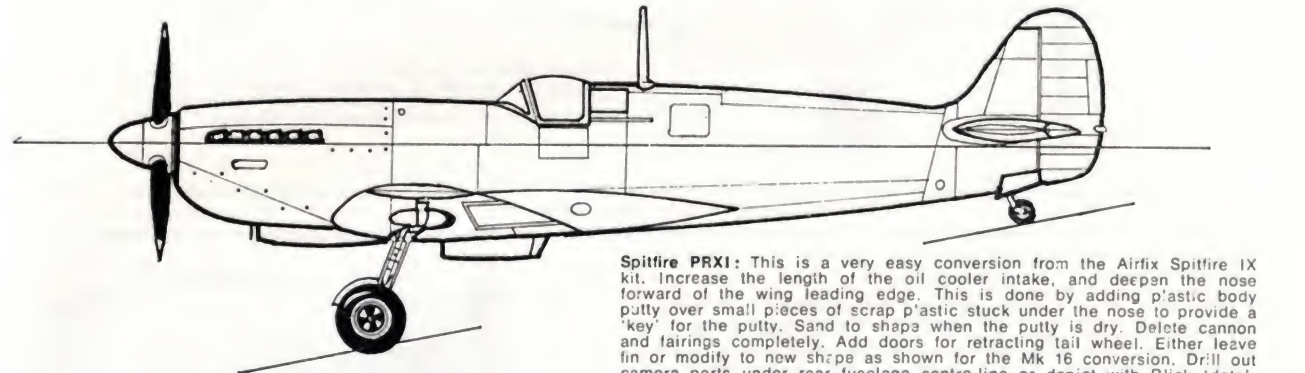
AIRFIX magazine



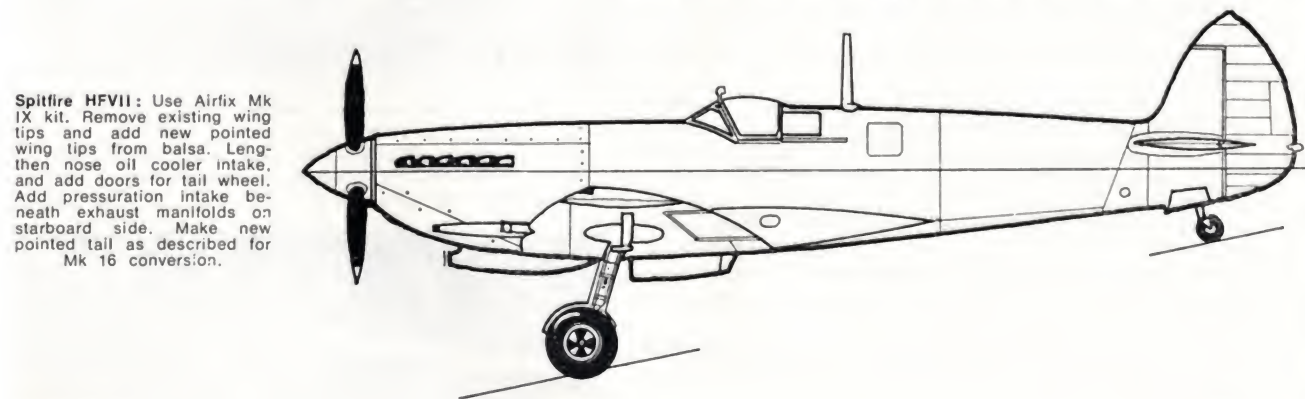
Spitfire FRXIV: This can be made from the existing Frog Spitfire Mk XIV, but for this conversion it is necessary to cut down the rear fuselage top, as described for the Mk 16, and a 'teardrop' canopy must be provided, either moulded by the modeller or found among the 'spares' in your scrapbox. Provide doors for the retracting tail wheel from plastic card. The camera port must either be drilled out or depicted by a black 'dot' after painting.



Spitfire FXII: This conversion also utilises the basic Frog Spitfire Mk XIV kit, but it is necessary to reduce the propeller to a four-blade unit, re-spacing the blades, and clip the tips from the wings as described for the Mk 16 conversion in this article. The tail shape must also be modified to match that shown for the Mk 16. Add doors for tail wheel.



Spitfire PRXI: This is a very easy conversion from the Airfix Spitfire IX kit. Increase the length of the oil cooler intake, and deepen the nose forward of the wing leading edge. This is done by adding plastic body putty over small pieces of scrap plastic stuck under the nose to provide a 'key' for the putty. Sand to shape when the putty is dry. Delete cannon and fairings completely. Add doors for retracting tail wheel. Either leave fin or modify to new shape as shown for the Mk 16 conversion. Drill out camera ports under rear fuselage centre-line or depict with black 'dots'.



Spitfire HFVII: Use Airfix Mk IX kit. Remove existing wing tips and add new pointed wing tips from balsa. Lengthen nose oil cooler intake, and add doors for tail wheel. Add pressurisation intake beneath exhaust manifolds on starboard side. Make new pointed tail as described for Mk 16 conversion.

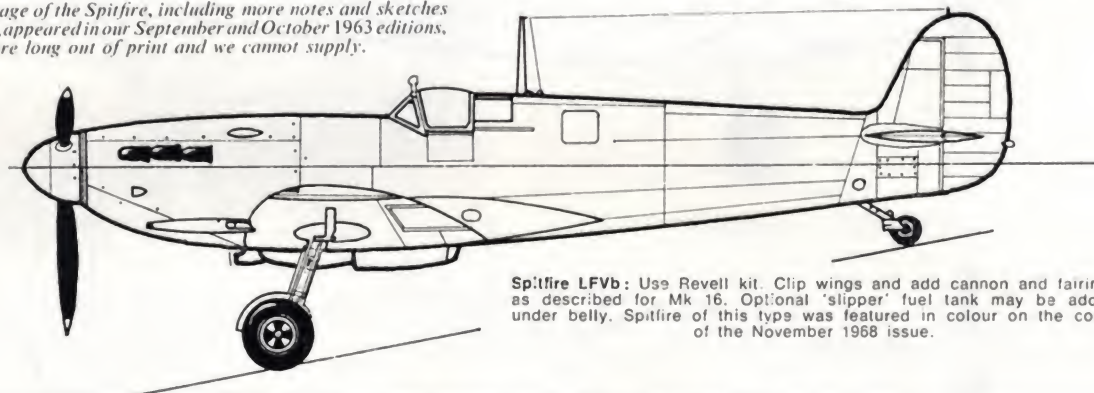
Simple Spitfire conversions—continued

Most of the necessary work for these various marks is described in the actual conversion article that has been provided on the Spitfire LF16e, with the exception of the pointed wing of the HFVII.

There should, however, be little difficulty in producing this as all that is required is the removal of the rounded tip down to the line of the outboard edge of the aileron and a new piece added in balsa. The revised shape which is illustrated well in 1:72 scale in the Harleyford Spitfire book can then be shaped and sanded down to the original aerofoil, coated with clear dope and talcum powder filler and prepared for painting in the usual manner. In every case apart from the LFVb a retracting tailwheel will have to be represented, but all that is really necessary here is for two small pieces of plastic card to be cut to the right shape and stuck on to the model as shown in the drawing. The Frog kit of the Mk XIV needs this addition in any case as this rather important particular has been missed off of the basic kit.

With well over 20 variants of Spitfire to consider I have attempted to show how many of these can be produced in either simple or more difficult conversions. This leaves us with an equal number of interesting types not yet covered but used to much good purpose during and after the war by the Royal Navy. Sealfire conversions are just as interesting as many of the RAF versions of this aircraft. Although not so numerous they can give many hours of modelling pleasure and will be covered in another article in a later issue.

Detailed coverage of the Spitfire, including more notes and sketches on conversions, appeared in our September and October 1963 editions, though these are long out of print and we cannot supply.



Spitfire LFVb: Use Revell kit. Clip wings and add cannon and fairings as described for Mk 16. Optional 'slipper' fuel tank may be added under belly. Spitfire of this type was featured in colour on the cover of the November 1968 issue.

Carrier Story—from page 433

tion achieved an all-round traverse but gave a high silhouette and limited protection to the gun crew.

For the third model, to effect a lower silhouette, the gun, fitted with a three-sided shield, was mounted at the rear of the vehicle, the engine being moved forward. A traverse of 200° was achieved for the gun.

Carrier, Loyd, 25 pdr Gun/How: This was an experimental conversion, the 25 pdr gun being mounted in the front of the carrier, from which the front superstructure had been removed.

Bridge, SP, Tracked: Projected in early 1940, this experimental vehicle was built and tested in 1941. It was 30 ft long and based on Loyd Carrier components and was intended to serve as a tracked mobile bridge for tanks up to 25 tons and for light wheeled vehicles.

Carrier, Loyd, Mobile Welding Plant: An experimental conversion of the Loyd Carrier, to carry welding equipment. The top superstructure was removed and the generating plant fitted across the centre of the vehicle. A canopy was erected for the driver and fitter.

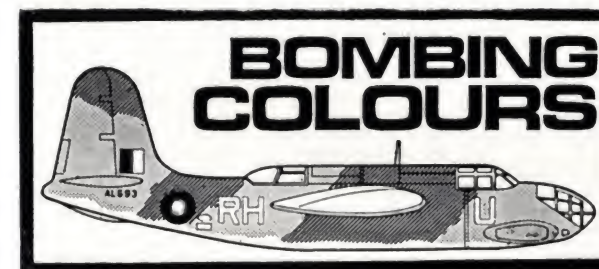
CATI (Canon Anti Tank d'Infanterie): Adopted by the Belgian Army after the war, the Loyd was converted into a self-propelled mount for the 90 mm gun.



Top: Front view of a standard Spitfire Mk IX as modelled by Airfix, clearly shows oil cooler intake shape and rear view mirror mounted on windscreen top. Above: PA907 was a Spitfire PR XI as drawn on previous page. It has the early type fin and has a camera port in the fuselage side. This particular machine at Luxor in 1945 has been largely stripped to bare metal and appears to have retained PR Blue areas in the form of an anti-dazzle panel on the cowlings. Similarly, most of the underside, but certainly the fuselage bottom, retains the PR Blue colour (Photo by S. Hubble).



Above: Hind of 107 Sqn pictured in April 1937 in the 'standard' form of markings described here (MoD photo).



Part 14: The Hawker Hind

THE Hawker Hind was a refined Hawker Hart and its visual differences were slight. It had the more powerful Rolls-Royce Kestrel V which slightly altered the cowlings shape; the rear cockpit for the gunner/bomber was improved with the gun ring cut down into the fuselage decking to afford the gunner greater protection from the slipstream, and a tailwheel replaced a tailskid.

A total of 527 were supplied to the RAF as an interim between the Hart and the new monoplane bombers. The Harts were then relegated to training in the newly-formed Volunteer Reserve training units. As such the Hind was the last of the bombers delivered in aluminium doping. Entering service in 1936 it escaped the national marking changes of the Harts and, in fact, it could be said in general that when units changed their Harts for Hinds, only the serial numbers changed. Unlike Hart production, Hinds were all built by the parent firm, Hawker Aircraft Ltd.

To summarise the markings on delivery; roundels on fuselage sides were standardised in size as illustrated, and on wings, port and starboard sides, upper surfaces of top wing and bottom surface of lower wing, they were of maximum size permissible without overlapping the ailerons. Serial numbers were in black 8 inch characters on rear fuselage, and rudders, and were also painted underneath the wings inboard of the roundels.

On reaching squadrons in the newly-formed and rapidly expanding Bomber Command, they would be conspicuously marked with the unit number in their flight colours, red for 'A' flights, yellow for 'B' flights and blue for 'C' flights. Of these, yellow contrasted poorly against the silver finish and in this case the number was usually outlined thinly in black.

In squadrons in the mid-thirties there had been a trend towards adopting crests and some units marked these on the fins of their Harts. The practice continued in some Hind squadrons in a rather different way—the crests being contained in a stan-

May, 1970

dard frame. This was another move towards standardising markings. As the war clouds gathered in Europe, preparations were made to restrict markings so that if war came they could easily be obliterated as a security measure for units forming the Expeditionary Force. On February 1, 1936 it was decreed that in future unit markings should be limited to the form of the unit's crest in a standard frame, a six-point star for army co-operation squadrons, a spearhead for fighter squadrons and a grenade form for bomber squadrons. The inside of the frame was to be painted white and the amount of colour and embellishment to the unit crest was up to the unit.

By the very wording of the instruction on unit markings, that they would be 'limited to' this form, as apart from 'will be displayed' in this form, they were taken to be optional markings. As the Hind was interim equipment of many reformed squadrons, pending delivery of Blenheims or Hampdens, not all units adopted fin markings.

The new monoplane bombers were factory finished in a camouflage of a disruptive pattern of dark earth and dark green from April 1937. This finish did not apply to Hinds which were all delivered by the end of 1937. However, Hinds still in service at the time of the Munich crisis, September 1938, were given an overall painting in standard camouflage distempers of dark brown, green and grey. These finishes, applied by units, were intended only as a ground camouflage for airfield security.

Another innovation at the time of the crisis was the issue of code letters instead of unit numbers, but the code lettering system did not become mandatory until March 1939. By that time most squadrons had re-equipped with monoplane bombers and the Hinds had been passed on to auxiliary squadrons and, when discarded in turn, they were utilised in other ways.

General Aircraft Ltd of Heston were given a contract in 1938 to convert 124 Hinds to trainers; with a yellow finish they were issued to Elementary & Reserve Flying Training Schools. Similarly the late production Hinds from L7202, left the works as trainers.

From 1940 to 1942 there was a general exodus of Hinds from the UK to Commonwealth countries, mainly South Africa, New Zealand and India. Several went to foreign air forces including twelve to Afghanistan; these were K5409, K5457, K5554, K6668, K6675, K6804, K6832, K6842, K6853, K6855, L7180 and L7181.

Squadrons of RAF Bomber Command using Hinds, with their period of use indicated in brackets, are given below. Unless otherwise stated it may be taken that the squadron number was displayed boldly in flight colours immediately forward of the fuselage roundel and in figures of a height approxi-

Continued on next page

Bombing Colours — continued

mately equal to that of the rounded diameter.

No 12 Squadron (Oct 1936-Feb 1938): This unit re-equipped with Hinds on returning from the Middle East after the Abyssinian crisis using K5394 (crashed at Calshot April 1, 1937), K5395 (crashed July 16, 1937), K5396, K5399, K5501, K5526, K5547, K5548, K5549 (crashed March 3, 1937), K5550-5554, K5555 (crashed September 16, 1937) and K5560.

No 15 Squadron (Feb 1936-June 1938): Converting from Harts to Hinds this squadron was again the only one that marked the unit number in Roman numbers, ie, as XV. Appropriately a Hind was chosen as their crest and this was authorised in May 1936 as 'A Hind's head affrontee'. The crest in the standard grenade shape was marked on the fins which were plain aluminium doped, except for flight leader's aircraft which had their fins painted in flight colours. Hinds used were: K5413, K5414, K5421, K5430, K5431, K5439, K5440, K5449, K5450, K5456, K5460-5462, K5463 (crashed October 16, 1936) and K5464.

No 18 Squadron (Feb 1936-May 1939): This Squadron distinguished their Hinds, like the Harts they had used, by a 'sign-writing' presentation of their unit number (see previous issue of AIRFIX magazine). Pegasus, their unit crest, displayed in a shield form of the squadron's choosing on their Harts, was placed within the standard grenade form on their Hinds.

During the Munich crisis the code letters GU were allotted. This squadron used Hinds for a much longer period than other squadrons. Those used, with 'fall-outs' before replacement noted, were: K5451, K5452 (crashed August 10, 1937), K5453 (crashed April 21, 1937), K5454 (crashed February 11, 1938), K5471, K5472 (crashed March 22, 1937), K5473, K5474 (crashed Jan 2, 1937), K5475, K5476, K5481, K5483-5486, K5487 (crashed April 24, 1937), K5488, L7186 and L7193.

No 21 Squadron (Dec 1935-Aug 1938): The first Hinds to enter squadron service, K4637-4640, were sent to No 21 at Bircham Newton on the reformation of the squadron. Subsequent Hinds to bear the number 21 on their fuselage sides were: K4649, K5373, K5377, K5388 (crashed February 24, 1937), K5446, K5518 (crashed August 26, 1937), K6684 (crashed May 29, 1937), K6685-6688, K6758-6759, L7175 and L7190-7191.

No 34 Squadron (Jan 1936-July 1938): Second of the bomber squadrons to get Hinds, No 34 first received K4642-4645 and K4650 on reforming with No 21 at Bircham Newton. The total of Hinds known to have borne the number '34' were: K5393, K5397 (which ended its days at Tottenham County School), K5398, K5512-5513, K6689 (crashed December 12, 1937), K6690, K6756 (which, after service as a glider tug and Air Transport Auxiliary 'hack' machine, survived until 1944) and K6757.

No 40 Squadron (March 1936-July 1938): From a markings view-point, when No 40 Squadron changed from Harts to Hinds it was only a case of a change of serial numbers for the aircraft were marked precisely as described previously for their Harts. The Hinds used were: K5422-5427, K5428 (crashed October 8, 1936), K5429 (withdrawn for No 15 Squadron), K5430-5433, K5437-5438, K5447-5448, K5465-5469, K5470 (withdrawn for No 52 Squadron), K5495 and L7176.

No 44 Squadron (March-Dec 1937): Hinds used briefly while awaiting Blenheims were K5404-5405, K5407, K5415, K5418, K5420 and K5434-5435.

No 49 Squadron (Feb 1936-Dec 1938): Another of the squadrons, reforming under the RAF Expansion Scheme with Hinds, No 49 marked their unit number slightly smaller and more forward on the fuselage than standard. The Hinds also bore the unit's greyhound crest in the standard grenade form on their fins. The first Hinds allotted were K4652, K5382-5385 but K5383 crashed early in 1937 after 135 hours flying. Others that followed were K5442-5443, K6641 (ended up as Instructional airframe 1865M); K6642-6647 of which K6643, K6646 and K6647 were withdrawn before the replacement Hampdens arrived in late 1938, due to flying accidents; K6752-6753, K6839 and L7194 a replacement aircraft which itself crashed January 24, 1938). During the 1938 summer crisis the code letters XU were allotted.

No 50 Squadron (June 1937-Jan 1939): Reforming at Waddington in May 1937, No 50 received Hinds in June from No 90 Squadron and marked these with a '50' only slightly smaller than the fuselage roundel. Aircraft concerned were: K6738-6750 all ex-90 Squadron of which K6746 and K6748 collided in mid-air August 16, 1937, but fortunately all occupants escaped with their lives. Other aircraft used were K6812-K6820 and L7195. Hinds later used the squadron code QX.

No 52 Squadron (Jan-Dec 1937): Used initially Hinds K5406-5412 of which K5411 crashed in May 1937. Hinds to equip a further flight, K6734-6737, arrived later but by the end of the year

the first Battles had arrived.

No 57 Squadron (May 1936-May 1938): As with Harts, so with Hinds, but additionally with the unit crest as illustrated. Hinds arriving from May were K5477-5482 and K5489-5494, followed by K5406, K5409 ex-No 52 Sqn, K5455 and L7186. The first Blenheim arrived March 25, 1938 and the last Hind left May 19, 1938, but prior to the first date, K5479, K5482, K5489, K5494 had crashed while serving with the squadron.

No 62 Squadron (May 1937-Feb 1938): From re-forming until receiving Blenheims the squadron used Hinds K6772-6784 from production to which K5415 was added, ex-44 Squadron, presumably to replace K6773 which crashed November 27, 1937.

No 82 Squadron (June 1937-March 1938): On re-forming No 82 received twelve Hinds from production, K6822-6833, of which K6822 and K6825 were both struck off strength on November 5, 1937 suggesting that they collided. Later additions were K6842 and L7197.

No 83 Squadron (Sep 1936-Dec 1938): Reforming with Hinds No 83 marked their unit number further forward than other squadrons so that it appeared beneath the gunner's cockpit. Aircraft used were K5416, K5525, K5528 (crashed June 13, 1937), K5529 (crashed August 3, 1937), K5530, K5556, K6634 (crashed April 7, 1937), K6635-6640, K6754 and L7198. The unit code letters QQ were marked on in 1939.

No 88 Squadron (Jun-Dec 1937): Hinds K5451, K3496-5499, K6843-6848 and K6850 briefly formed this squadron's interim equipment.

No 90 Squadron (March 1937-May 1937): As an interim from reforming to Blenheims arriving, No 90 used Hinds K6738-6750 delivered straight from production.

No 98 Squadron (Feb 1936-June 1938): This squadron marked its Hinds boldly with '98' rather larger than roundel size on fuselage sides. Hinds used were K5368-5369, K5378 (crashed into the sea May 15, 1936), K5379-5381, K5442; K5444, K5445 and K6613 which all crashed in 1937, K6614-6619, K6716-6719 and L7199-7200.

No 103 Squadron (Aug 1936-Dec 1938): This squadron marked '103' slightly smaller than roundel size. 'B' Flight aircraft had their yellow marking outlined thinly in black. K5519 was the first Hind to arrive at Andover and there was some delay before K5520-5524 arrived, followed by K5527, K5557, K6677-6683, K6719-6720, K6849 and L7188. The code letters GV were allotted later.

No 104 Squadron (Jan 1936-May 1938): Marking '104' boldly on their aircraft, this squadron received Hinds from the first batch, these being K4641, K4646-4648 and K4651 followed by K5514-5515, K6620-6626, K6721-6723 and L7201.

No 106 Squadron (Mid-1938): Temporarily used K5440, K5449 and K5450, all ex-15 Sqn.

No 107 Squadron (Sept 1936-Sept 1938): For two years No 107 used Hinds, marked with their unit number slightly smaller than roundel size. The Hinds were K4653-4654, K4655 (which crashed October 30, 1936), K5419, K5543-5544, K5545 (crashed January 19, 1937), K5558 (crashed December 13, 1937), K6692-6698 (K6697 crashed August 19, 1938), K6725 and K6731. The code letters BZ were allotted at the time of the Munich crisis at the same time as their first Blenheims arrived.

No 108 Squadron (Jan 1937-June 1938): This squadron marked its number in very bold strokes but slightly smaller than roundel size on its Hinds K6670-6676, K6724 and K6726-6730, supplemented later by K4648, K6775 and L7184-7185.

No 110 Squadron (May 1937-Jan 1938): Hinds were needed as an interim from reformation when K6809-6821 were used.

No 113 Squadron (May 1937-Jan 1939): Hinds K6796-6808 were allotted to this squadron on reforming and most of these were taken to the Middle East. Other aircraft used in the UK were K5420, K6824 and K6826. It is understood that the '113' markings were removed on all aircraft when shipped to the Middle East.

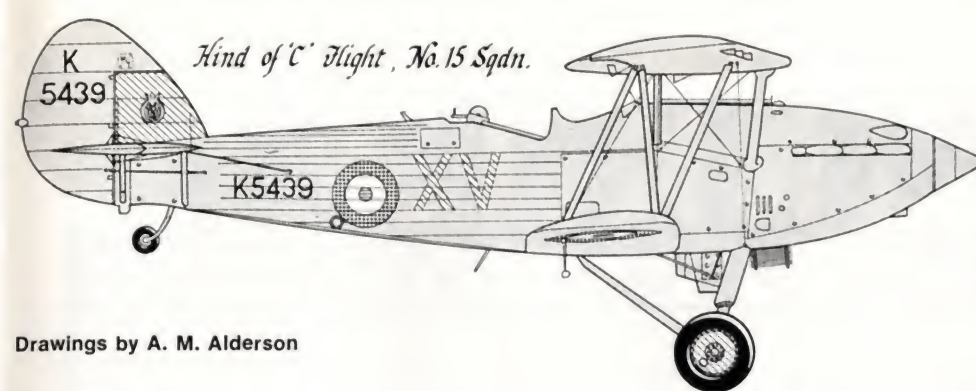
No 114 Squadron (Dec 1936-March 1937): In the brief period between reforming at Wyton and receiving Blenheims three months later, Hinds K5400-5403 were used.

No 139 Squadron (Sept 1936-July 1937): After forming at Wyton, Hinds K5370-5372, K5374-5376, K6710-6715, K6733 were used with the number 139 displayed slightly smaller than roundel size, placed centrally outside the gunner's cockpit.

No 142 Squadron (Jan 1937-March 1938): Hinds K6654-6655 and K6657-6669 were initially allotted, but K6661, K6662, K6665 and K6667 did not survive to March 1938 when Battles started arriving.

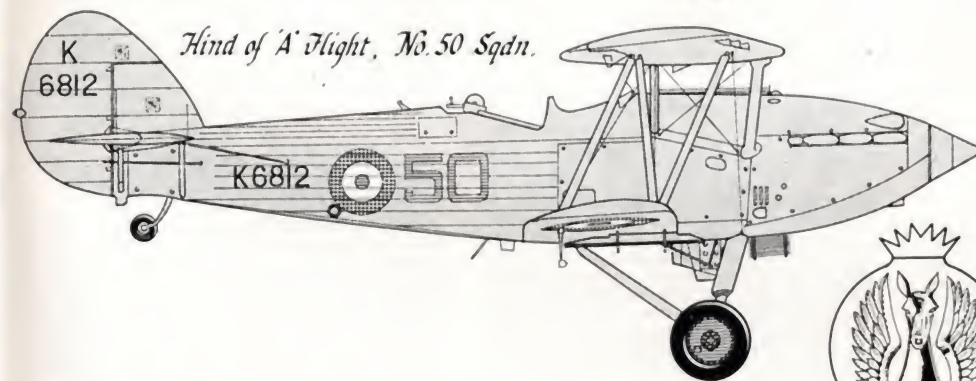
No 185 Squadron (Jan-June 1938): Hinds used included K5424, K5426, K5427, K5495 and L7176 all from other squadrons.

No 211 Squadron (Oct 1937-May 1939): This squadron changed over from Audax to Hinds receiving K6851-6855 and L7174-7181, and later K6632-6633. The squadron number on the fuselage side was removed when the squadron embarked for the Middle East in 1938.

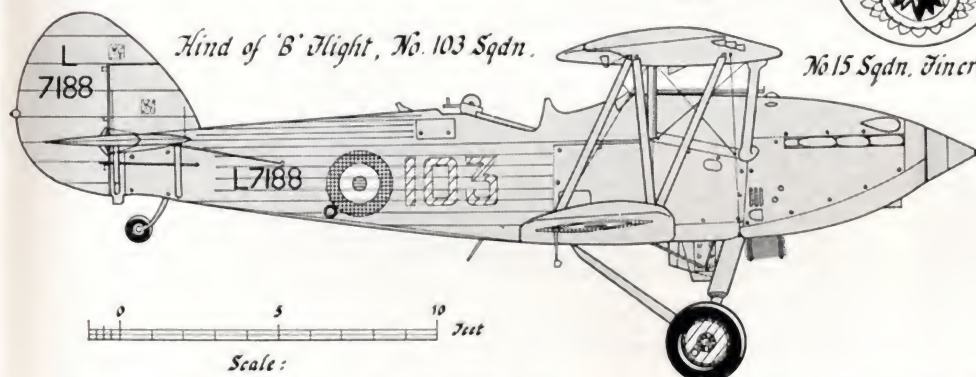


Hind of 'C' Flight, No. 15 Sqn.

Drawings by A. M. Alderson

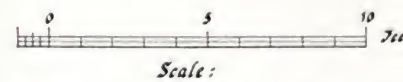


Hind of 'A' Flight, No. 50 Sqn.



Hind of 'B' Flight, No. 103 Sqn.

No 15 Sqn. Fincrest



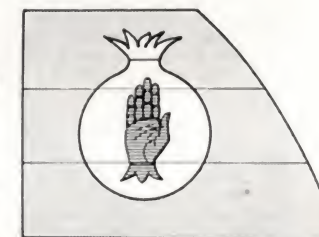
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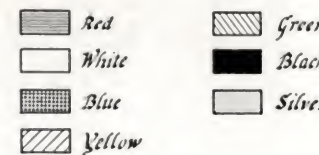
Fin of No. 57 Sqn Hind



Fin of No. 18 Sqn Hind



Fin of No. 502 Sqn Hind



No 218 Squadron (March 1936-Feb 1938): The squadron marked their number in bold strokes slightly smaller than roundel size on Hinds K5372, K5389-5392, K5441, K5515-5516 and K6627-6633.

No 500 [County of Kent] Squadron (Feb 1937-March 1939): In 1937 the establishment of this auxiliary squadron was 9 Hinds plus 2 Tutors. By the issue of Hinds K6699-6709 the unit was over-equipped but the establishment was raised in April 1938 to twelve Hinds following which K5393 was added until March 1939 when Ansons were received and the unit's role changed.

No 501 [County of Gloucester] Squadron (Jan-Nov 1938): Hinds K5396, K5398-5399, K5410, K5550, K6690, K6782 (crashed June 12, 1938), K6747, K6823, K6827-6829, K6831, L7182 were used.

No 502 [Ulster] Squadron (April 1937-Nov 1938): Bearing the red hand of Ulster as illustrated, and '502' in flight colours, the Hinds of this squadron were initially K6761, K6763 (crashed November 14, 1937) and K6764-6771, supplemented later by K5417, K6681, K6838 and L7197.

No 503 [County of Lincoln] Squadron (1938 only): Initially K6785-6795 were allotted supplemented later by K5481 and L7193.

No 504 [County of Nottingham] Squadron (May 1937-Oct 1938): Straight from production Hinds K6785-6795 went to the squadron, supplemented later by K5492, K6716, K6720, L7179 and L7199.

No 505 [City of Glasgow] Squadron (June 1936-Nov 1938): Numbers marked as on Harts on Hinds of this, the first auxiliary squadron to receive Hinds—these being K5500, K5502-5511 initially, supplemented later by K5418, K5460 and K5513.

Above: Some typical squadron finishes for Hinds and details of other squadron markings. The side views are to 1:72 scale for modellers wishing to adapt the Airfix Hart or Demon kits to represent Hinds.

No 603 [City of Edinburgh] Squadron (1938 only): Hinds K5498-5499, K6629, K6755, K6811, K6814-6817, K6819, K6843, K6845 and K6847 were used.

No 605 [County of Warwick] Squadron (Aug 1936-Jan 1939): The second auxiliary squadron to receive Hinds, this squadron received K5531-5541, supplemented later by K6674, K6676, K6710 and K6726.

No 609 [West Riding] Squadron (1938 only): The unit number was marked small by the pilot's cockpit on K5421, K5451, K5464, K5497, K5519, K5542, K6728, K6730, K6737, K6790, K6820, K6846, K6850, L7177, L7185 and L7188.

No 610 [County of Chester] Squadron (May 1938-Feb 1939): Used Hinds K5400, K5476, K6615, K6625-6626, K6659-6660, K6663-6664, K6718, K6721, L7186-7187 and L7190.

No 611 [West Lancashire] Squadron (1938 only): Used Hinds K5390, K5401, K5406, K5414, K5478 and K5480.

Bruce Robertson

ONCE again pressure of space has forced us to hold out Photopage from this issue, though several pictures intended for Photopage appear in other articles. Similarly, due to the length of the Armoured Bulldozer article, Chris Ellis's 'Military Modelling' feature is held over. Our next issue is the tenth anniversary edition and contains some suitably nostalgic glances at 1960, complete with 'vintage' conversion article.

NEW KITS AND MODELS

WAGON SHEETS

WE have received two more new sheets of OO scale printed wagon parts from Collett Models, 135 Winter Road, Southsea, Hants. Sheet 5 contains parts for two wagons; an LMS covered beer van and a PO salt type wagon 'Steelley Co Ltd'. Sheet 6 contains parts for two 5-plank china clay traffic open wagons; 'E.C.L.P.' and 'English Clays, Lovering Pochin & Co Ltd', also three pairs of GWR brake van nameboards. These cards are printed in two colours; black and grey for Sheet 5 and red and black for Sheet 6. They retail at 3s each plus 6d postage. It is intended that the printed card parts be cut out and glued to plastic card bodies which can be mounted on to a suitable 9 ft wheelbase chassis such as the Airfix Mineral Wagon. Earlier cards in this series were reviewed in the May 1969 issue and a full feature describing them was published in the July 1968 issue. N.S.

STEAM LOCO

FOLLOWING on the old time Japanese locomotive kit by Otaki reviewed in the January 1970 issue we have received from Jones Bros of Chiswick a magnificent kit for a modern type Japanese steam locomotive, a D51 Class 2-8-2 tender locomotive, a type built in numbers between 1936 and 1945. The model is built to the same 1:50 scale but unlike the earlier model some attempt has been made to pivot all the valve gear parts since screws are supplied to assemble them instead of simply cementing them together as was done with the earlier kit. This part of the construction is quite complex but as with the rest of the kit the illustrated instructions are very clear and well drawn and easy to follow. The main instruction sheet is printed in Japanese characters but a supplementary sheet gives English translations. Despite the pivoted valve gear parts the tender bogies are still not pivoted and the tender wheels have the same wobbly form of construction which dictates that the model is purely a static one.

The quality of the kit, the packing and presentation is superb. The main parts are cleanly moulded in black plastic with here and there a trace of flash. They fit well and without hesitation. The wheels and motion are plastic plated silver. Once again a fully glazed display case and length of track is supplied and this measures 24 inches long overall. Certainly we have not seen a plastic locomotive kit of such a high standard before and with perhaps the one reservation that it is a purely static model, it is excellent value for £4 19s 11d. Postage is 3s 6d extra. N.S.

FROM MODELDECAL

MODELDECAL have recently announced the release of their third and fourth sheets to complement the two already in existence for the BAC Lightning and McDonnell Phantom.

Released concurrently with Frog's new

F-100, the third sheet provides four alternative finishes for the Super Sabre including the Triple Zilch, a F-100 D-65-NA, when flying with the 20th TFW at Wethersfield in 1960. Other markings on this sheet are for an aircraft of the 307th TFS, 31st TFW, in Vietnam and a similar one for an aircraft of the 416th TFS, 31st TFW, also in Vietnam. The last item is for a camouflaged Super Sabre with the name *Charlene* on the nose. The sheet provides national markings, cockpit interior detail, unit badges and many other small items which will be of considerable use in making up first rate models of the new kit. The price of the sheet is 7s 6d.

The fourth sheet, also well up to the previous high standards set by Richard L. Ward and Robert Jones, gives markings for several US Navy aircraft in the last war. These include a Dauntless of VF-2 when on board the USS *Lexington*. On May 7-8 1943 the crew of this aircraft shot down seven Japanese aircraft and the markings provided show the kill signs stencilled on the side of the fuselage. Also in the sheet are markings for an F6F-3 Hellcat of VF-6, USS *Intrepid* when flown by Lieutenant A. Vracui who ended the war with 19 victories to his credit. The markings show the aircraft when his score had reached nine. The crew of the third example on this sheet are unknown and the aircraft depicted is a TBM-3 Avenger when serving on USS *Bunker Hill* in 1945. The sheet sells for 5s 3d and is excellent value. Each of the Modeldecals sheets is contained in a plastic envelope and has a fully detailed instruction leaflet giving the location of the marking and the camouflage colours used on the aircraft.

Modeldecals sheets can be obtained only from Modeltoys, 246 Kingston Road, Portsmouth, and examples can be sent by return of post. A.W.H.

CHANGE OF NAME

THE Letraset type of rub-down transfers which have been previously marketed in this country by Blick Dry Print Ltd have recently had a change of name. These increasingly popular dry transfers are now known as Dri-Dec decals and can be obtained either from local model shops or direct from Dri-Dec, The Model Shop, 19 Market Street, Newbury, Berkshire. All future orders and communications should be addressed to this company and cheques made payable to Dri-Dec.

Bryan Philpott who introduced this type of transfer to the British market is still very much involved with the new company and will be available for technical queries at the new address or his home address, Brook Cottage, Bishop's Green, Nr Newbury, Berkshire from where the transfers have previously been distributed.

Eight new sheets—M27 to M34—will be available shortly. Selling at 7s each, these will include revised sheets of USAF code letters and numbers, the first dry-transfer Russian Air Force markings, Luftwaffe code letters and numbers in two sizes.

Most important of all, a complete set of markings for the Canadian Armed Forces are amongst the new releases. Contained in four separate sheets these show the new CAF Maple Leaf roundels and fin insignia, and the red and black shadow lettering and buzz numbers. The last sheet, M34, in addition to having RCAF lettering has a number of rescue arrows, ejector seat triangles and fuelling point markings. A.W.H.

POSTER COLOURS

HUMBROL, known internationally for their excellent range of modelling enamels has branched out into a new line. For the first time they have produced a range of poster colours which will be of great use to model makers and artists alike. They will be of undoubted use in painting scenic dioramas for airfields, or railway dioramas and the range includes 18 vivid colours. The ½ oz plastic containers can be bought separately at 1s 6d each or as complete sets of 18 in poster palettes designed to stack on top of one another. These retail at 30s a set.

Also new from Humbrol is a contact adhesive which comes in the usual tube form and is priced at 2s 6d a tube. A.W.H.

FROM POLAND

ONE of our readers in Czechoslovakia has sent us examples of two new kits to 1:72 scale, made in Poland, one by Ruch and one by Coopexim. The former is for a PZL P11c, and appears to be very similar to the Revell kit. Though the assembly is easier, the moulding standard is poor, while the transfers are virtually unusable. However, the outline appears accurate though the tail is too broad in chord. The second kit is more likely to interest Western modellers since it is for a PZL P23a Karas, the Polish attack bomber which was somewhat akin to the Stuka in its function. Moulded in silver plastic, the kit looks rather poor on first glance, but once the flash has been cleaned off you are left with a reasonably well moulded kit which fits together well. The finished model of this valiant aircraft from the 1939 era is worth adding to any collection. There is a useful Profile available, too, which would help any modeller wishing to work up the model to better standards. The transfers are poor. These kits cannot be purchased outside the Eastern Bloc, of course, but they could be obtained on a direct exchange basis with Polish or Czech pen friends, etc, as outlined below. C.O.E.

CZECH KIT

AMONG our keenest readers overseas are those in Czechoslovakia, whose activities include a thriving branch of IPMS. They have been largely instrumental in encouraging the firm of Kovo-zavody Prostejov to enter the kit field with a range of 1:72 scale models devoted to famous Czech aircraft types, and the Czech IPMS members have helped the

Continued on page 444

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F. Mk. 6 XS921 "M" 74 Sqn.
F. Mk. 1A XM175 "E" 56 Sqn.

Also revised fin emblem for Airfix kit of F. Mk. 1A XM192 "K" 111 Sqn.

Sheet No. 2 1/72 scale

Three alternative finishes for the McDonnell Phantom

F-4B, VMFA-531 U.S.M.C. 1968;
F-4C 555th TFS, 8th TFW, USAF 1967, as flown by Col. (now Brig-General) Robin Olds;
FG.1, 767 Sqn, F.A.A., 1969

THE FINEST!

Sheet No. 3 1/72 scale

Four alternative finishes for the F-100D Super Sabre in USAF service

56-3000 "Triple Zilch", 20th TFW Wethersfield, U.K. circa 1960
55-3712 "Pahokee Tiger" 307th TFS, 31st TFW, Vietnam, late 1965
55-3604 416th TFS, 31st TFW, S. Vietnam, late 1965
"Charlene", 31st TFW, S. Vietnam, circa 1968, (Camouflaged)

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Sheet No. 4 1/72 scale

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Above: Italaerei RE-2001. Model and photo by R. L. Ward

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New Kits — continued

firm with research and data. First fruit of their labours is a very neat little kit of the well-known L-29 Delfin jet trainer which is far and away the best produced kit we've yet seen from Eastern Europe. In presentation it comes in similar style to an Airfix kit, with header and instruction sheet, all in a polythene bag. The detailing, moulding, and accuracy is good, with less flash than we've seen on many British kits. There is a first rate transfer sheet, Frog-style, giving excellent optional markings for either Czech or Uganda Air Force machines, and there are colour scheme drawings as well. Production and presentation would do credit to most British manufacturers, in fact, and the model is well worth having as it's not likely to be produced by any other firms. Price in Czechoslovakia is equivalent to 8s 6d sterling and Czech IPMS members are willing to purchase these individually for British readers in exchange for kits from Britain of approximately equal value. To keep everything under control, however, the Czech modellers have got one of their members to co-ordinate 'wants' among the other members, so anyone in Britain wanting a Delfin kit should write in the first instance to find out what kit is requested in exchange. If you are interested, please write direct to: Dr. Ivan Klusal, Spojovací, 2605, Praha 3, Czechoslovakia. C.O.E.

KING COBRA

ONE aircraft model which could be converted from the Airacobra is its enlarged development, the King Cobra which saw little or no US service in the last war but was supplied to Russia. However, no such conversion is called for now since Aosima, the Japanese firm, has produced a 1:72 scale kit specifically for the P-63A. Just a lengthened, widened, Airacobra it doesn't call for much comment except to say that it fills yet another gap and is a very acceptable model, albeit a little crude by the latest standards. The parts fit together quite neatly and the cockpit doors are moulded as separate parts which gives great scope to detail fans wishing to add full cockpit fittings or 'scramble' scenes. If you already have the Airfix Airacobra in your collection, this is just the model to place alongside it. Transfers are supplied for a US aircraft though they are naturally very plain since there are none of the squadron adornments as were seen on the P-39. Price of the kit is 5s 11d, postage 1s, and it can be had from Jones Bros of Chiswick who supplied our sample. C.O.E.

NEW BY FROG

TWO more Frog releases in 1:72 scale are issued from original Japanese Hasagawa series moulds, and these are for the Harrier and the long awaited F-100D Super Sabre. The Harrier, of course, duplicates the recent Airfix model, but at 8s 6d has little to justify its being twice the price of the Airfix model other than a much

better and more detailed transfer sheet (for two alternative Transatlantic Air Race machines) and a slightly more complex break-down of the fuselage parts. For instance, some small fittings which are moulded integrally with the Airfix fuselage are separate items in the Frog kit. The air-brake can also be opened or closed, while in the Airfix model it is fixed in position. It's an excellent model, despite the price, however.

The F-100D, also at 8s 6d, is a better proposition at the price in our view. It's beautifully moulded, has optional ordnance loads and is actually a good deal more simple to assemble than the Harrier, with all parts clicking into place with an excellent fit. Two alternative sets of markings, for a French or a Danish machine, are provided, and these too are excellent. One reader has already written in to point out that the silver Danish machine depicted has been painted in the new camouflage scheme since early 1969, though this is really an academic point since it makes no difference to the markings and colour scheme provided. Jones Bros of Chiswick supplied our samples and can supply by post, postage 1s 6d extra on each. C.O.E.

LATEST CARS

LESNEY have produced two superb little 1:54 scale models as the latest in their Matchbox range, these being the Ford 3 litre Group 6 GT car and the Porsche 910. Both are beautifully detailed—the best yet in our view—and worth having at only 2s 8d each. C.O.E.

Twin-tail Beaufighter — from page 431

STRAKES These are made from 20 thou plastic card shaped as shown in Fig 4.

ASSEMBLY All five new parts can now be fitted on to the fuselage. The assembly sketch, Fig 5, and the photos should make their locations clear. The rest of the model may now be assembled as per the kit instruction sheet, as the tail is the only modified part.

FINISHING Paint Grey and Green camouflage as shown on the photos, with standard sky undersurfaces. Roundels and fin flashes from the kit are suitable but the serial numbers must come from another source. Either paint it on (if you have a steady hand, like me!) or use decals or Letraset. The yellow 'P' in yellow circle comes from a Yeoman or Hales RAF or USAF transfer sheet, or from the recent Almarks sheet featuring this item.



Basic Railway Modelling — from page 421

as an alternative to the extra body parts. Firstly, with the sides it is necessary to replace the centre section containing the door opening and a piece of spare body side was cut to fit. The door opening section was removed and the replacement body panel cemented in place.

A spare non-opening or plain end (Airfix part No 24) was used to replace the door end (part No 25) but here again plastic card can be used to fabricate a plain end if a spare is not available. Then the two sides and the two ends were reduced in height to 10 mm. As an aid to assembly it is possibly worth while to cement thin strips of plastic card on the inside of each of the two sides and ends to act as locating strips similar to the ones removed when the lower portion of the body parts were cut away. But this is not essential.

The wagon can now be assembled as per the Airfix Instruction sheet. Since the photograph of the prototype shows it fitted with spoked wheels it is possibly desirable when substituting spoked wheels for the disc wheels in the kit to replace the Airfix plastic disc wheels with metal spoke wheels mounted in Peco bearings. Another point to watch is at stage 5 and 6 of the Instruction Sheet where the brake levers (parts 10 and 11) are cemented in place. Remove the brake lever from the 'V' hanger and cement it in the position shown in the photograph. It will probably be necessary to bend the brake lever slightly relative to the brake lever guard to adjust it to fit in its new position. The door stops should also be removed from the solebars. Since the prototype is vacuum fitted a vacuum cylinder should be cemented underneath the floor

and a vacuum pipe cemented to the buffer beam at each end. Both could be made from plastic sprue of different thicknesses, perhaps in the case of the vac pipes stretched and heated over a candle. Finally a tie-bar cut from 20 thou plastic card should be cemented between the bottoms of the axleguards on each side. Dummy loads for either wagon can easily be simulated by sprinkling sand on to glue spread over a block of balsa wood carved to fit inside the wagon.

Needless to say, both these easy conversions are ideal for beginners and I hope that any railway modelling enthusiasts who may have read previous articles but not tried earlier conversions, may be encouraged to make a start with these useful and inexpensive additions to the rolling stock fleet.



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Letters to the Editor

Fury identified

IN the February issue of AIRFIX magazine—on Photopage—you asked whether anyone could identify the crest on the tail of a Fury I trainer.

I find in my logbook that this aircraft belonged to the Advanced Training Squadron of the RAF College, Cranwell, and that the crest, of course, is that of the RAF College.

Wing Commander R. Rotheram,
Andover, Hants.

Hercules interior

I AM sure that modellers of the Airfix Hercules would like to know of the correct interior colour scheme. The floor is a dull silver with green squares of a non-slip material stuck over it. The sides and top surface are pale grey and handles to the doors are bare metal. The whole of the exterior of the aeroplane is finished in gloss, with the exception of the fibre-glass nose.

I remember reading in a back-issue of AIRFIX magazine a letter complaining about the absence of blocks and tackle for ship models. I, too, found this disappointing but then discovered that the packets of beads obtainable in toy shops for a shilling or so look very good on the rigging of ship models and make all the difference on the finished thing.

R. A. White, West Croydon, Surrey.

RFC points

MAY I be permitted to make a few comments on the very interesting 'British Army '14-18' article, Part 8.

The photograph, top of page 291, was taken in 1913 at the CFS. The pilot was Major Gerrard. The flying kit described as a black leather jacket etc, and one piece goggles was, I am sure, a pre-1914 style obtained from commercial sources.

The successor to the brown leather coat, etc, was the well known Sidcot Suit, introduced by an RFC officer, Sidney Cotton, who later became prominent in aerial photographic circles between the wars. This consisted of a one piece fawn coloured gabardine garment, on overall lines, with a fur collar, and remained standard issue for many years.

The RAF continued to use the RFC army style of pips and crowns to indicate officers' rank until August 1919 when the present system of rank titles and cuff rings was introduced. NCOs continued to use Army style chevrons, a four bladed propeller above chevrons, 3 bar, indicating a Flight Sergeant. The red propeller mentioned in the text would have been used on khaki drill tropical dress, this dress, both for the RFC and RAF, was similar to the Army issue KD.

Flight-Sgt R. W. Elliott, Wyton,
Hunts.

Error corrected

THANK YOU for publishing my letter (February edition, AIRFIX magazine). There were, however, some mistakes which I would like to amend: the date of the launching of PA4 should be September

Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters columns. Please note that any letters anticipating a reply MUST be accompanied by a SAE or stamp.

1, 1944 and not June 15, and the name of the Greek destroyer should be VASILEVS not VASILERS.

R. P. Mitcheson, Louth, Lincs.

Useful tips

I HAVE some ideas, which, though they might have occurred to some readers, might be of use to others.

I have found that if the excess plastic on which the parts come, is left in turps for two days a useful plastic putty forms. A word of warning, when the plastic melts, it has to be left out of the turps for fifteen minutes, otherwise it sticks to your hands. A plastic substance then forms. When not in use it must be kept in an airtight jar, or else it will harden to its original form.

I have also found that teeth from various combs can be used for propeller blades or struts, or also swords on OO/HO figures.

Steven Martin, Katwomba, Australia.

Saladin details

CONGRATULATIONS to Airfix for the large scale Saladin which really is a fine model. Why not the Saracen and Fox in the same series? I have somewhat modified my model, so that it looks still more realistic. These are the changes:

(1) The original antenna is replaced by a pin that is cemented on a small coil spring. When cemented on the turret, the new antenna will oscillate at any movement of the vehicle.

(2) No 10 staples are very realistic when used as 'steps' on the turret sides. They are driven slightly into the turret sides according to the illustration on the box.

(3) When cut into two parts, the shells provided with the model can be accommodated in one of the storage boxes of the vehicle. A sharp knife or a razor blade will be used to cut out the upper part of the box. The bottom of the box is made from plastic card. Adhesive tape is used to form the 'hinge' between the box and its lid.

(4) More realistic rear red lights can be made from plastic scraps painted red.

R. Cauchie, Brussels, Belgium.

Truck tilts

MAY I, through the columns of your magazine, pass on my method of making tilts for military vehicles?

I have seen many methods advocated, from using brown paper and wire to toilet paper. But the method I have found to

excel is as follows:

Using Slater's plastic rod, I take the thinnest strands and fashion tilt bars in prototypical fashion. Then using a household bin liner readily obtainable from chain stores in packs of 25 or 50, I take one and open it out. The next step is to paint with the matt colour of your choice an area greater than you will need for the tilt. The very thin polythene of which these bin liners are made take paint very well, in fact. When the paint has dried, cut out this piece and drape it roughly over the tilt bars which have meanwhile been stuck to the vehicle. This will show you roughly where to cut the bin liner. Now, using a very small amount of cement of the tube variety, smear a little on the tilt bars, but it must be a very small amount since this polythene is extremely sensitive to plastic cement. When you have applied slight pressure to the bin liner it should stick to the plastic tilt bars. The last stage is the one that adds the final touch of realism. Threading a needle with some 'rope' coloured cotton, pierce the liner along its bottom edges on either side with the needle and thread, pulling the cotton into a V every two holes. Each V of thread should be cemented with fluid cement at its apex as you sew it. It will stick readily to plastic. As one progresses thus along the side of a truck, the tilt bars begin to stand out through the thin material of the bin liner and it falls into natural ridges, just as on the real thing.

Points to watch are not to use too much cement on the tilt bars initially because as the tilt relies for its fixing in the cotton 'ropes' this is not wanted anyway.

Also, when pulling the cotton through into Vs, be careful not to use too much pressure since the material is apt to tear.

Finally, if all this sounds like a lot of time and trouble, believe me, the finished product is well worth it.

G. Thomas, Nottingham.

Venom points

I'VE only recently got hold of your September 1969 edition of AIRFIX magazine and immediately having done so I am up in arms! How dare Michael J. F. Bowyer short-sell my favourite jet fighter?

I refer to Page 38, the Photopage of that edition, keys 5 and 6. Key 5 shows a Venom firing an air-to-ground rocket with a concrete practice head—this one at that instant wasn't operating against the Communist terrorists. Key 6—now really! In 2½ years of working among Venoms at Tengah with dear old 60 Squadron, I never once saw a 250 lb bomb. Those are 1,000 lb bombs on aircraft V and O, and they were definitely off on a strike. My qualifications for correcting Mr Bowyer are that I was an armourer with 60 Sqn (on Venoms and Vampire T11s. The latter, apart from training, were used mostly for rocket and cannons strikes and usually carried overload tanks. Happy days!

Derek Pennington, Ontario, Canada.

M. J. F. Bowyer writes: *Our caption was based on information given by the sender of the pictures. No offence intended to the Venom or No 60 Sqn.*

More flashes

THE following details of flashes worn by the 55th (West Lancashire) Division in 1916 will complement the information given by Mr David Nash in his March article. The flashes were authorised on March 30, 1916 and were worn by all ranks just below the collar at the back of the service jacket.

The distinguishing badges were:

1st Bn of each Brigade—vertical oblong
2nd Bn of each Brigade—2 vertical oblongs side by side

3rd Bn of each Brigade—inverted triangle
4th Bn of each Brigade—square.

Composition of the Division and colour of the flashes of each Brigade:

164 Infantry Brigade—Red flash

(1) 1/4th Kings Own Royal Regiment
(2) 1/8th (Irish) Kings Liverpool Regiment
(3) 2/5th Lancashire Fusiliers

(4) 1/4th Loyal North Lancashire Regiment

165 Infantry Brigade—Green flash

(1) 1/5th Kings Liverpool Regiment

(2) 1/6th Kings Liverpool Regiment

(3) 1/7th Kings Liverpool Regiment

(4) 1/9th Kings Liverpool Regiment

166 Infantry Brigade—Black flash

(1) 1/5th Kings Own Royal Regiment

(2) 1/10th (Scottish) Kings Liverpool Regiment

(3) 1/5th South Lancashire Regiment

(4) 1/5th Loyal North Lancashire Regiment

Royal Engineers—Yellow flash

419 Field Coy RE—oblong

422 Field Coy RE—2 oblongs

423 Field Coy RE—inverted triangle

Royal Artillery—Blue flash

275 Bde RFA—oblong

276 Bde RFA—2 oblongs

Div Amn Column—inverted triangle

Pioneer Battalion

1/4 South Lancshires—yellow square.

A. J. Moore, Liverpool 22.

Texture tip

A QUICK tip for those who wish to use body putty in their conversions; when a model has been extensively altered so that the surface to be painted varies from plastic through body putty to talcum filled balsa wood, then to achieve a good finish for painting one should give the model one coat of gloss varnish. This reduces the variety of textures to one even surface ready for painting and seals the putty better than a coat of ordinary paint. I have found this to be especially effective in the case of modern jet aircraft.

W. P. Thorne, Mansfield, Notts.

Card models

WITH reference to the card cut models mentioned in the March issue of AIRFIX magazine, these were designed and produced by Wallis Rigby, famous for card models produced for presentation in the *Wizard, Rover*, etc.

Another excellent series of card models by Micro Models appeared after the war; these depicted such subjects as the *Mallard Loco*, *Bleriot Monoplane*, *Bristol 173 Helicopter*, etc. They had minute detail printed on fine Bristol board and extreme care was needed to make up these excellent little models.

Turning to the present day if anyone cares to turn his hand to card modelling a new series of aircraft depicting 'Battle of Britain' aircraft is currently on sale in some bookshops.

Incidentally the book *Simple Cardboard*

Models is still available from some model shops or by post from Model & Allied Publications Ltd, 13-35 Bridge St, Hemel Hempstead.

Barry R. Clay, Tile Hill, Coventry.

Hercules facts

FURTHER to the excellent articles in the February issue on the Hercules, I have decided to write on one or two points.

Mr Alan Hall refers to the three figures of the serial repeated on the nose of the OCU machines. However, at the time of the Anguilla operations, I photographed VX301 of 47 Sqn, and this machine carried the numbers on the nose. This aircraft also carried a 'dayglo' 301 under the cockpit front as referred to by Mr Bowyer.

Another 47 Sqn aircraft, XV292, had its astrodome replaced by a transparent panel instead of a metal one. This aircraft also carried nose serials.

Andrew S. Thomas, Swansea, Glam.

Spray warning

I WAS interested to read in Letters to the Editor (February 1970 issue) of a method for protecting transfers in which Reeves Fixatif was recommended. I have been looking for something of this description for some time and accordingly I purchased an aerosol.

Fortunately I tried the spray first on the remains of a model belonging to one of my boys. I say fortunately, because I found that the spray wrinkled either the plastic or the paintwork.

I have however, since discovered an alternative with no harmful effects which I can recommend to other readers. It is KINGSTON DIAMOND TRANSLAC—POLYURETHANE CLEAR MATT, which of course has to be brushed on and costs approx 6s 6d per half pint.

J. B. Crofts, Stoke-on-Trent.

Mottled finish

HAVING seen a war film at school I noticed that a lot of the German tanks featured had speckled camouflage. So after a bit of thinking, I came across an idea which doesn't require much work or time.

To start with, obtain a hard old toothbrush, then paint your tank the basic colour. For the mottle effect dip the old toothbrush into the required colour after ensuring that the base colour is dry. Then draw a piece of sprue along the brush starting about 6 inches away from the tank progressively moving away and so making the spray finer. All details (eg, spare wheels, guns, etc) should be painted first.

B. Ridgway, Northwich, Cheshire.

504 K replicas

THE article on the Avro 504K in the January 1969 issue of AIRFIX magazine brought back many happy (and a few unhappy) memories to me.

In the summer of 1966, I was ordered to the RCAF station at Trenton, Ontario, to help in the construction of two Avro 504Ks to be flown with the 1967 Centennial Aerobatic Team, the 'Golden Centennaires'. After the construction of the first of them, the servicing crew transferred their base of operations out to Victoria, British Columbia, to allow the aircraft to be flown in milder weather than is usually found at the Team's home station here at Portage La Prairie, Manitoba. It makes it a bit difficult to get the old rotary engines



Above: 'Sitting Pretty', a garishly marked Stirling IV of No 166 (Special Duty) Sqn, RAF in 1944; serial and code unknown. Can anyone provide the missing details? The name is painted in either red or yellow beneath the figure. Photo from D. Eldridge.

going at —25° . . . to say nothing of the ease and comfort of the pilots. Before going out to west coast, the Avro was flown here at a temperature of —14°, and we feel that it must be some sort of a record for the Avro clan.

The drawing shows the colour scheme and markings used on the two Avros flown by the team. The first one built, G-CYCK became 'Old Gold Two' on the radio, and G-CYEL, the second, 'Old Gold One'. The aircraft were built exactly to the plans supplied by A. V. Roe of England, with only the following changes.

Windshield: hand formed, similar to Stearman biplane.

Radio: FM, battery powered, 'walkie-talkie' style.

The use of one gauge heavier metal in all fittings, and modern wires in place of the old style.

It was unfortunate that G-CYCK 'pranged' on the test flight just prior to the display at Air Force Day in Ottawa, in July 1967. The pilot suffered a small cut to his nose and a severe blow to his pride. Other than the six weeks it took us to repair the damage—after which the darned thing flew better than ever, by the way—the scheduled flights were only missed due to the engines getting balky and not starting in time to get the aircraft airborne in time for its time slot. With eight Tutor jets in very tight formation due in the circuit as soon as your eight minutes are over, if you miss the take-off time, you just don't take off.

Colour Scheme

Fuselage, Wheel-discs, Wings upper surfaces, and Horizontal Stabilizer upper surfaces: Nivo green.

Lower surfaces of wings and horizontal stabilizer: Natural Linen.

Cowling, Access Panels, U/C: Gloss Black. Roundels: Fuselage and Upper Surfaces: White outline.

Rudder Stripes: Red, White & Blue in that order from leading edge.

Lettering: Gloss Black on White panels on Fuselage and Upper Surface. Gloss Black directly onto fabric of undersides Lower Wing. Gloss Black on White Panels on top and bottom of Horizontal Stabilizer.

Firewall and Belly Panel under forward cockpit: Natural metal.

Propeller: Flat Black with Gloss White or Yellow tips.

Skid and Struts: Natural Varnished Wood. Cockpit Padding: Red Leatherette.

I do not have the serial numbers of the two rather crumbled fuselages that were bought with the original plan of refurbishing. They were in such sad shape that they were scrapped and the final aircraft built entirely from new materials. As far as my memory serves me, one was purchased

Continued on page 449

SEVEN WEEK WAR



by R.C. GIBSON

Part 2: Other 'Prussian' uniforms

A number of other states followed the Prussian style of uniforms during the 1850s, but by 1866, only four remained: Hesse-Cassel, Frankfurt, Hesse-Darmstadt and Baden. All of these fought against Prussia, and wore black-red-yellow arm-bands to identify themselves from their opponents, who wore white arm-bands: both colours appeared on the left arm. All the four states followed Prussian colours: dark blue tunics for Infantry, with grey trousers, piped red. Light Infantry had dark green tunics and grey trousers, piped red (with the exception of Hesse-Darmstadt, whose Jaeger Regiments wore the blue Infantry tunic with a green collar). Fig 3 shows how the uniforms differed.

Hesse-Cassel's emblem was a lion rampant, crowned; white metal for Guard Regiments, yellow metal for others; fittings were yellow metal. Buttons were yellow for Line and white for Guard Regiments (the Life Guard Regiment wore the Prussian 1st Foot Guards tunic, as described). The sister Duchy of Hesse-Cassel was Hesse-Darmstadt; they added a wreath to the lion; emblem and buttons were white metal. Frankfurt used an

almost identical uniform to the Prussian Line Infantry; only the ring bayonet and the musket were different. All the infantry wore red shoulder-straps. Baden wore the pickelhaube in 1866, but campaigned in the forage cap illustrated, or the black Austrian Jaeger hat with green feathers for the Light Infantry. Shaks and forage caps featured the state cockade: yellow centred red (Baden) or white centred red for Hesse-Cassel and Hesse-Darmstadt.

A number of smaller states wore the pickelhaube and uniforms of Prussian cut; dark green tunics and grey trousers were the only common factor. Fig 4 shows those of Anhalt, Schwarzburg, Saxe-Weimar and Koburg-Gotha.

Waldeck's tiny contingent wore a similar uniform to those above, ie, dark green tunic, grey trousers, but wore knee-length white gaiters over the trousers in the French style, as shown in Fig 5. Lippe-Detmold's Fusilier Battalion wore Prussian Schuetzen uniform with small differences, as did the Hamburg and Lubeck infantry contingents.

The most different 'Prussian' style uniform was that of Reuss, which was all

black with sky-blue piping on tunic and trousers, and sky-blue collar, shoulder-straps and cuff patches. Most of the 'other Prussians' can be modelled from the German World War I infantry, or the Confederates. Only the Prussians carried Dreyse rifles—the rest carried muskets.



Fig 4

(1) ANHALT: Rose-red piping, collar and cuffs. Brass helmet fittings. Silver shield emblem. White metal buttons. (2) SCHWARZBURG: Red piping collar straps. Cockade white, Centred blue. Yellow buttons. (3) WEIMAR: (Officer) Yellow piping sash, sword knot. Brass buttons, helmet fittings and emblem. (4) KOBURG-GOTHA: Black collar and cuffs, red straps, cuff tabs, piping. Yellow buttons.



Above: Prussian officer and rifleman are simple conversions from the Airfix Germans of 1914. Drummer is from the Guards Band set. Right: Officer and rifleman are also from 1914 Germans.

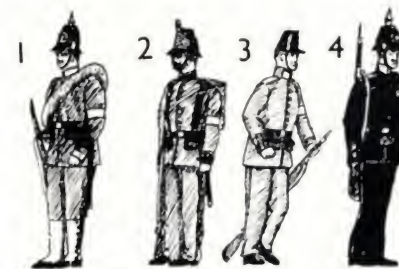


Fig 5

(1) WALDECK: Red piping, collar, cuffs and shoulder straps. Buttons and helmet emblem and fittings brass. (2) LIPPE-DETMOLDS: Black facings. Red piping. Silver 'star'. Brass buttons. Yellow cockade, Centred red. (3) HAMBURG and LUBECK: Red collar tabs, cuff tabs and piping. Shoulder straps and tunic piping. Buttons brass. (4) REUSS: Buttons and helmet fittings brass, silver emblem, Black leather webbing and pouch.

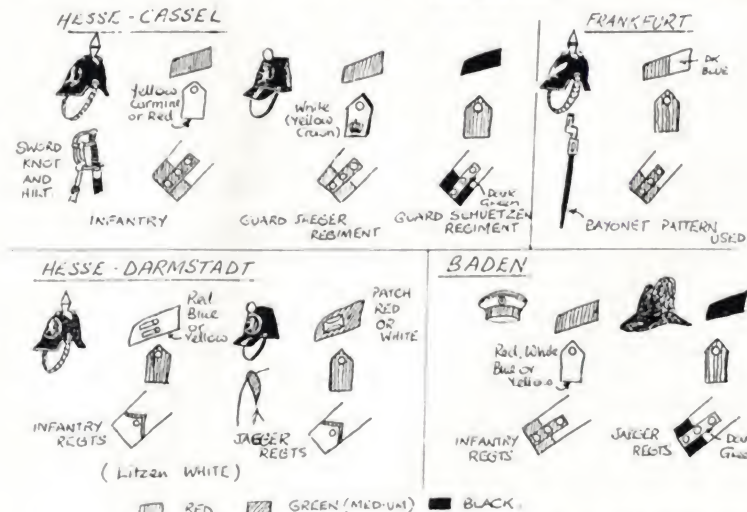


Fig 3: Authors sketches show state and regimental distinctions for the regiments described this month. Conversion details are otherwise as described last month.

AIRFIX magazine

New Books—from page 425

Famous liners

OCEAN LINERS OF THE PAST: WHITE STAR LINERS 'OLYMPIC' AND 'TITANIC'. Facsimile reprint. Published by Patrick Stephens Ltd, 9 Ely Place, London, EC1. Price 90s.

THIS book is essentially a reprint of the souvenir edition of *The Shipbuilder* which was published in 1911 when the great liners Olympic and the ill-fated Titanic were being put into service. Though a magazine, this particular number of *The Shipbuilder* was the size of a normal book, since it covered every aspect, technical and general, about these ships, which were then the technological wonders of their times. In addition to the souvenir number, this new book also includes two more sections from subsequent numbers of *The Shipbuilder* which dealt with the loss of, and inquiry into, the Titanic. There is also a specially written epilogue dealing with the Olympic's subsequent career and the sinking of the Titanic. The book includes gatefolds of scale drawings, machinery and deck drawings, and masses of pictures. Also included are some relevant adverts from the original publication. For anyone interested in merchant ships, this book should be of real interest, and anyone wishing to model these ships will certainly find all the data, information, and drawings they need.

Uniform book

SCOTTISH REGIMENTS, 1660-1914, by A. H. Bowling. Published by Almarks Publishing Co, 146 Watling Road, Edgware, Middx. Price 12s 6d.

THIRD in the new Almarks series, and the first of a promised range of uniform books, this book follows a similar format to the previous volumes on US Armoured Cars and the Sherman tank. The author, who has also illustrated the volume, takes 14 famous Scottish regiments, and provides a brief regimental history plus copious illustrations depicting the uniform development of each regiment. There are 192 uniform drawings, 115 of them being shown in full colour on the covers. Line drawings in the text show uniform and weapon details, colours, and other items of equipment. There are also more than 40 photographs, the earliest dating from 1854, showing typical uniforms and reproduced from contemporary sources. This book should be most useful for anyone who needs colouring instructions and detail conversion ideas for the Airfix Waterloo Highlander set, for several of the regiments featured wore this uniform and the colour drawings show all necessary details. A companion volume, dealing with British Infantry Regiments is

Below: Two Prussian signalmen erect a field telephone line on a post, with a Prussian Jaeger rifleman and Jaeger bugler, all as described last month.



May, 1970

promised shortly, and this will include weapon details applicable to the 1660-1914 period as well.

British guns

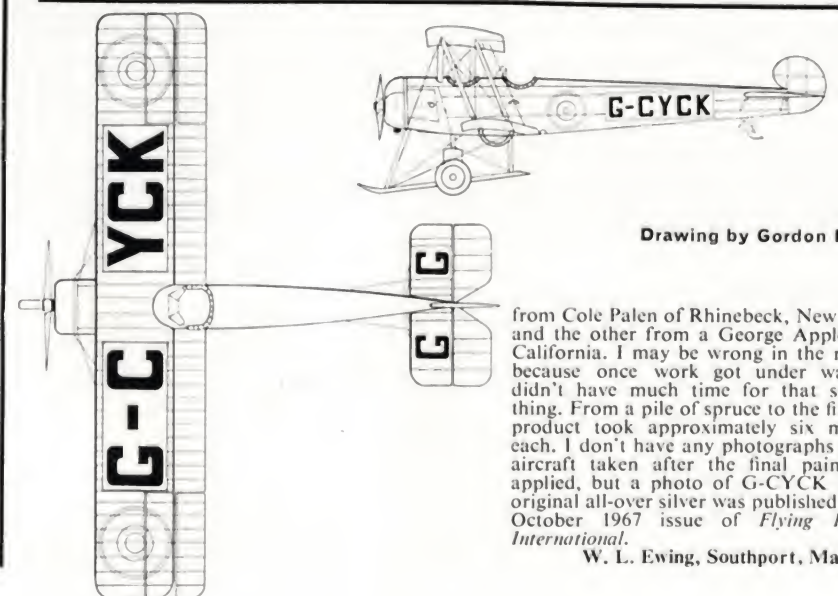
BRITISH SMOOTH BORE ARTILLERY, by Major General B. P. Hughes. Published by Arms & Armour Press, 16 Pembridge Road, London W11. Price 85s.

FOR anyone interested in the history of British artillery weapons this is the book to have. It covers the whole period of artillery up to the mid-19th Century, when rifled guns were introduced. There are over 100 pictures, and scale drawings, most taken from contemporary records and the book is worth the money for these alone. The text is very lucid and well written, and even if you've never studied the subject before, you'll find it very easy to pick up from this work. Presentation and arrangement of the subject matter is also excellent and the book is highly commended for weapons enthusiasts, or wargamers, alike, all of whom will find it a valuable reference work.

In brief

LATEST 1970 editions of the *Observer's Book of Aircraft*, by William Green, and the *Observer's Book of Ships*, by Frank Dodman, are now released at 7s each (Warne & Co). *Aircraft* is, of course, an updated annual offering, but the *Ships* book comes out less frequently. Both are indispensable to the enthusiast at the very modest asking price. The format follows the usual style, but the latter volume now includes coverage of new classes of ships like container carriers and supertanker. Two latest *Aircraft Profiles* cover the Japanese *Betty* and the *Mosquito IV*, the latter by Michael J. F. Bowyer (Profile Publications, 5s each). Both follow the usual style, with lengthy text, pictures and colour art, though the artwork in the latter title is not up to Profile's best. *Civil Aircraft Markings* by J. W. R. Taylor comes from Ian Allan at 5s, as does *Civil Airliner Recognition* by the same author and publisher, also at 5s. Both follow the pocket size format of earlier editions but are fully updated. The latter book has a subtle change of title for its predecessor, *Civil Aircraft Recognition* is being split into two separate books, covering airliners and light aircraft respectively, now with silhouettes and more extensive coverage. Finally there is a new edition of *London's Airports*, also from Ian Allan at 5s, covering Heathrow and Gatwick and aimed right at the civil aircraft enthusiast and spotter. It is packed with data, plans, aircraft pictures, facts, figures, and general information—an excellent buy for 5s.

Letters—from page 447



Drawing by Gordon Riddle

from Cole Palen of Rhinebeck, New York, and the other from a George Appleby of California. I may be wrong in the names, because once work got under way we didn't have much time for that sort of thing. From a pile of spruce to the finished product took approximately six months each. I don't have any photographs of the aircraft taken after the final paint was applied, but a photo of G-CYCK in her original all-over silver was published in the October 1967 issue of *Flying Review International*.

W. L. Ewing, Southport, Manitoba

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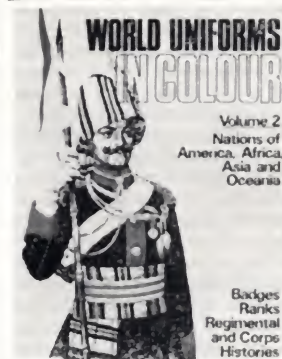
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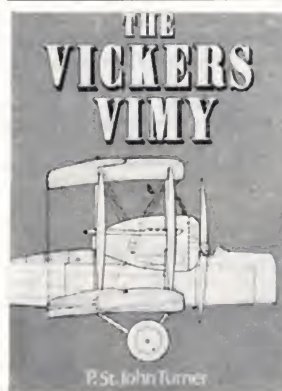
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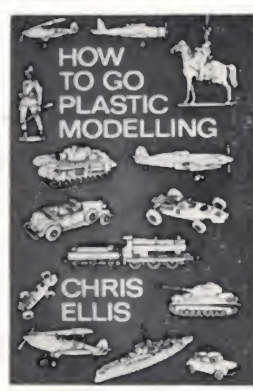
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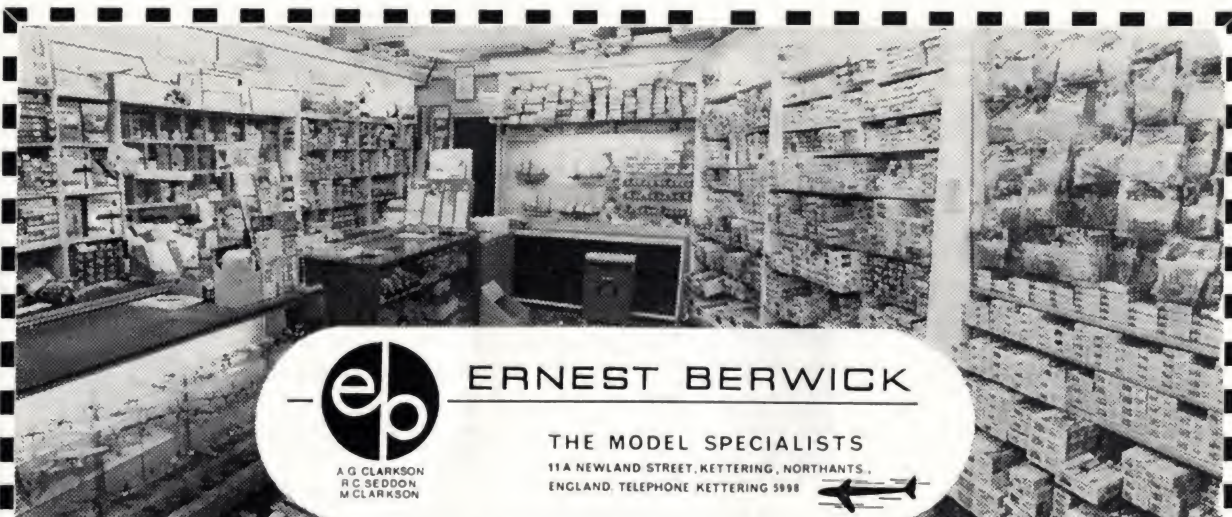
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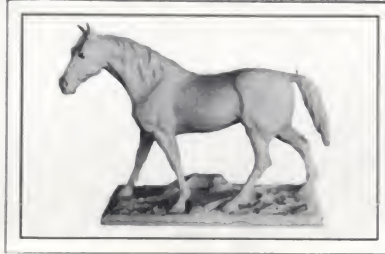
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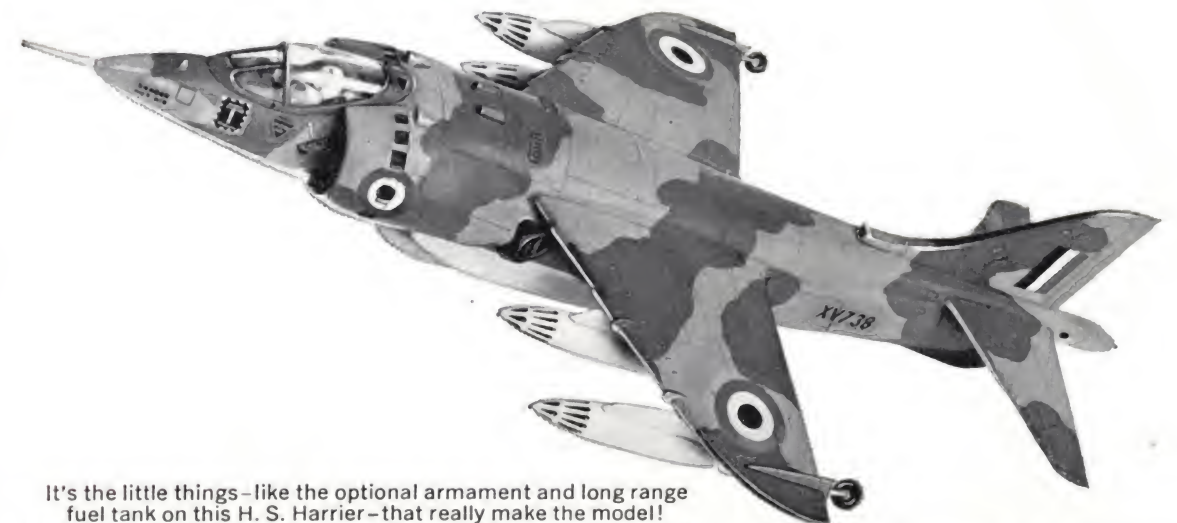
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